The Grill: Microsoft's research chief, Rick Rashid, talks about promising new debugging techniques, OS evolution and IT's next big thing. PAGE 22

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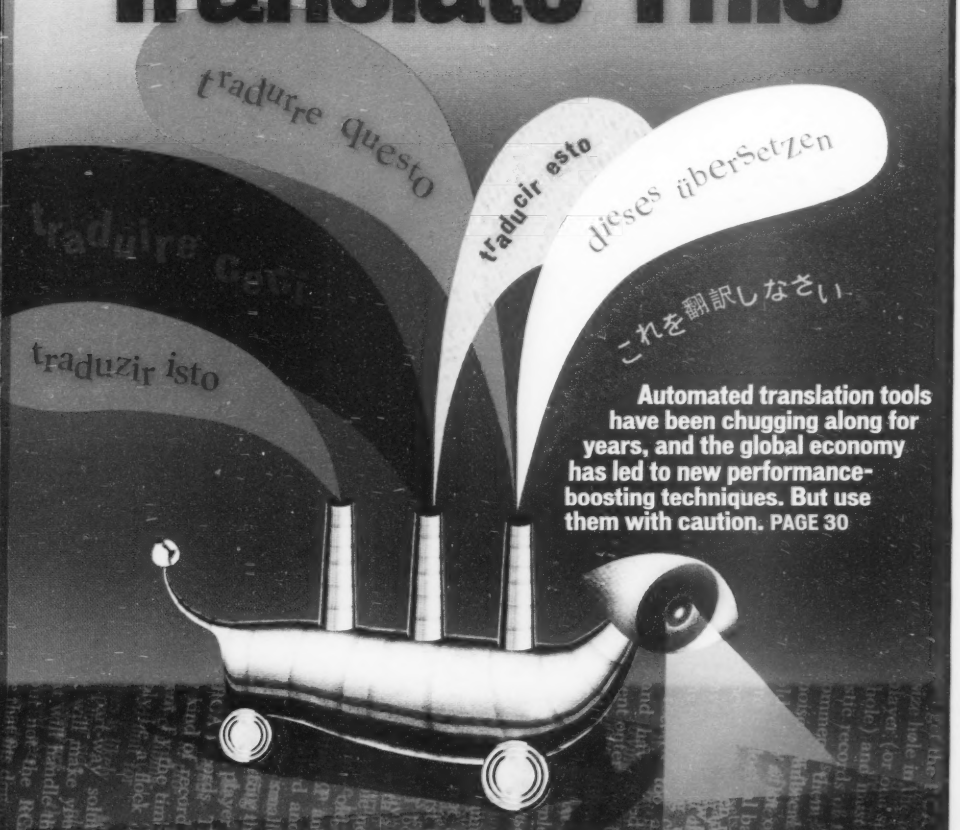
Translate This



Automated translation tools have been chugging along for years, and the global economy has led to new performance-boosting techniques. But use them with caution. PAGE 30

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AUGUST 13, 2007
VOL. 41, NO. 33 $5/COPY

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The EPA calls on companies to throttle back on energy use in data centers. PAGE 18

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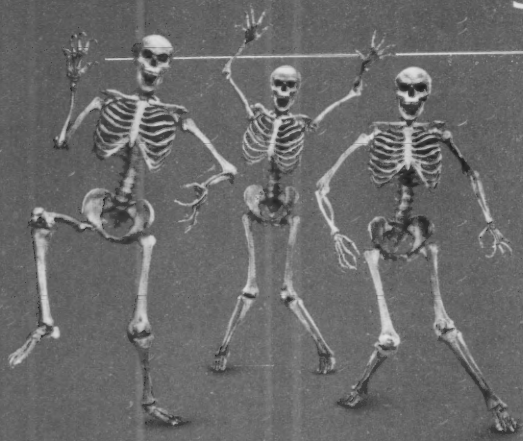
defeating skeletons. easy.



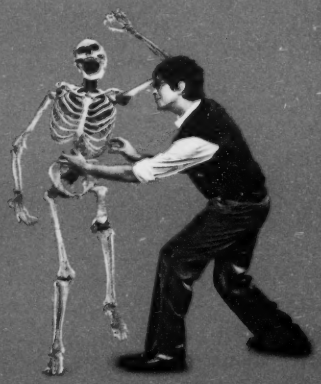
1. Pinch yourself; it's not a dream.
You're being chased by Skeletons down a long, dark hall. This is the stuff of nightmares, only in this case the hall leads to the lunch room and it's no nightmare; Skeletons really have attacked your office. Put aside fear and face the task at hand.

2. Sneak up and scare them.
Skeletons love scaring people, but why? Anyone that obsessed with scaring others is probably scared themselves. But of what? A psychologist might say the Skeletons fear exposure, for who is more exposed? Any psychologists out there?

3. Swing them around.
What's the matter, can't take a Skeleton? Once you get over the initial shock and fear, Skeletons don't really pose much of a threat. Sure they fight dirty, but you certainly have the weight advantage, and with even minimal effort you can pick him (or her) up and swing them around.

4. Use nondairy creamer.
Drinking milk builds strong bones, it's true. And a good calcium supplement is a must for women over 50, when the risk of osteoporosis can increase dramatically. By denying the Skeletons this important nutrient, you'll see them weaken and eventually crumble.

5. Put on a show.
It's one of the classic scenes in theater. Hamlet, the melancholy Dane, finds the skull of Yorick, his faithful servant, in the graveyard, and muses on the inevitability of death and loss. This is a big role for a Skeleton—use it as bait. Offer him the part, and simply keep the prop.



6. Destroy the dark crystal of Fabrikam.
What evil lies behind this attack? What unholy force animates them? It's likely the fabled dark crystal of Fabrikam has fallen into the hands of an enemy. Find the crystal at all costs, fling it into the fiery river at the heart of Bone Mountain, then sell the movie rights.

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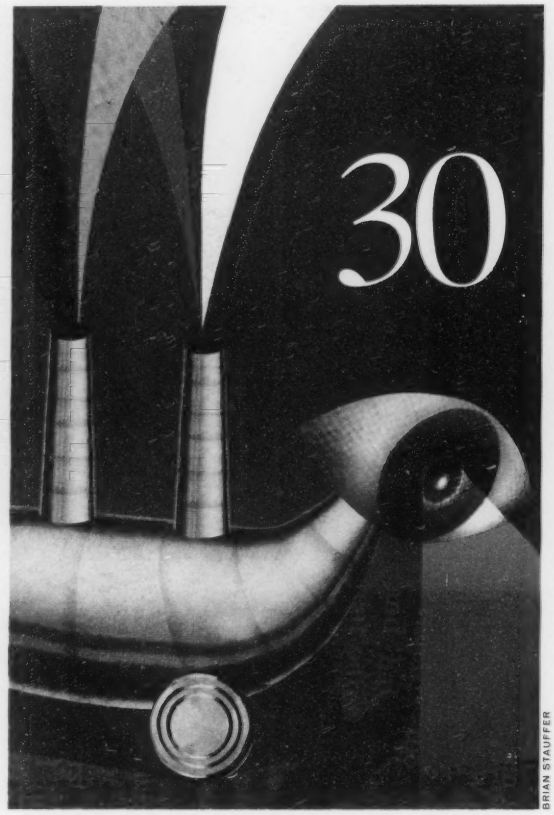

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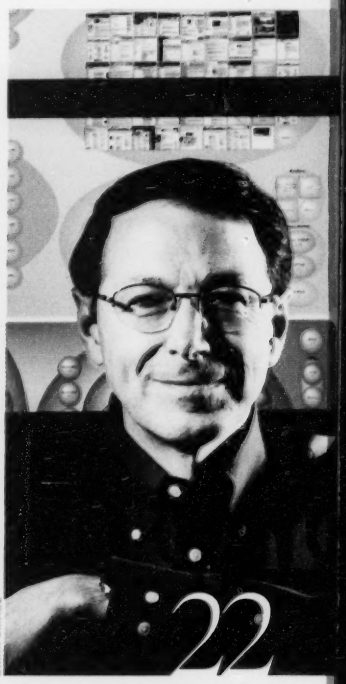

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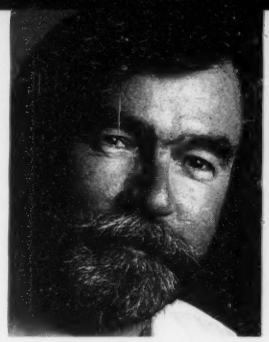
■ EDITOR'S NOTE

Mark Hall

Criminal Negligence



THERE'S A MOVE AFOOT to help criminals obscure their illegal online activities. The Internet Corporation for Assigned Names and Numbers (ICANN) is considering making it possible for anyone to avoid putting Web site ownership and contact information into the Internet's WHOIS database.

This seemingly minor change to the already loose requirements for Web site registration is being advocated by an unholy alliance of privacy ideologues, primarily in the European Union, and greedy Internet service providers. The former group argues that the less that is known about a Web site owner, the better that person's rights are protected. The ISPs supporting the change see it as a way to generate more business, though most of it is likely to be from crooks who, ironically, rip off Internet users by violating their privacy.

One of the most pernicious types of online crime is phishing. With a phishing scam, criminals lure consumers to visit a counterfeit Web page that looks identical to, say, a bank's site and then dupe the visitors into entering personal information. The crooks drain their marks' bank accounts or run up their credit card limits. *Consumer Reports* says that more than a million people lost a total of $2.1 billion during the past two years from phishing. Without WHOIS, the situation would be massively worse.

Today, legitimate businesses work vigilantly to protect their customers and their companies' reputations online. They hire brand-protection services that hunt down and shutter phishing sites. These third-party phisher killers are needed because law enforcement agencies lack the bandwidth to stop the bad guys. The crooks know this, so they have no fear of legal retribution. Indeed, MarkMonitor, a brand-protection service, claims that phishing incidents increased 104% in this year's first quarter compared with the same period last year.

In a variation on phishing, typosquatters prey on online consumers' poor typing skills. Brand protector CitizenHawk says, "Digital thieves use sophisticated, automated systems to purchase dozens, if not hundreds, of possible misspellings of domain names . . . to build vast networks of Web sites to siphon traffic away from legitimate companies." The reason they siphon that traffic is to steal personal information from clueless visitors.

■ WHOIS is one small tool available to identify and shut down bogus Web sites.

WHOIS is one small tool available to identify the ISP serving a bogus Web site and force it to shut the site down. Without WHOIS, it could take days instead of hours to locate and terminate a phisher's or typosquatter's presence.

ICANN is said to be leaning toward adopting operational point of contact, a policy that would eliminate the requirement that site owners identify themselves in WHOIS. An alternate policy, known as special circumstances, would let individuals and organizations — say, political dissidents or homes for battered women — hide their WHOIS data from prying eyes. That's a far better option.

But why make any change? WHOIS has been with us since the earliest days of the Internet. There will be no appreciable privacy gains by adopting a new policy, except in the abstract thinking of privacy-rights zealots. In the real world of the World Wide Web, it's more likely that increasing numbers of people will get their private information stolen if ICANN embraces operational point of contact for WHOIS. That would be criminally negligent.

WHOIS is not just about protecting corporate brands and unwary consumers. It's a good educational tool for kids, too. Visit *www.martinlutherking.org*, a Web site targeting schoolchildren. With WHOIS, you can run a search on its owner. Turns out the site is run by Stormfront Inc., a group that proclaims itself to be of interest to "pro-White activists and anyone else interested in White survival." But not those interested in the truth about Martin Luther King Jr.

Let's keep WHOIS data available to help sustain commerce on the Web, protect people's privacy and enhance our kids' educations. ■

Mark Hall *is a* Computerworld *editor at large. Contact him at mark_hall@computerworld.com.*

Don Tennant will return next week.

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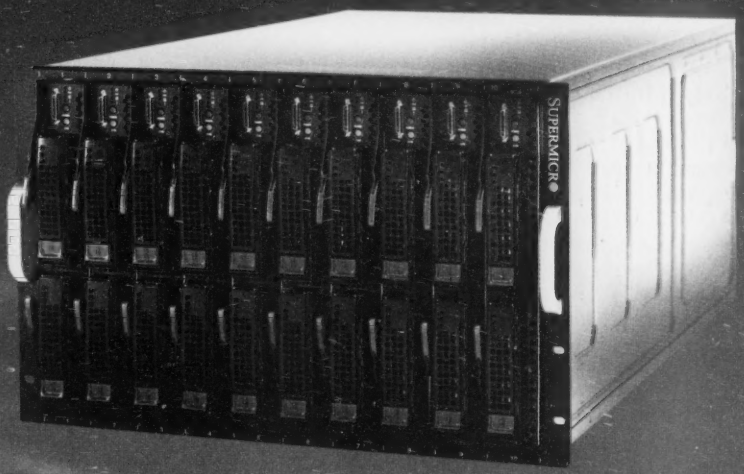
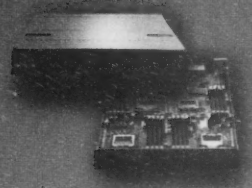
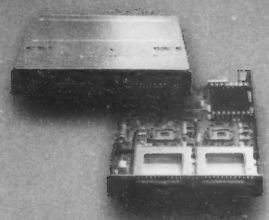




AMD Processor Blade
w/ 2.5 in. Drive Bay



Intel Processor Blade w/ 3.5 in.
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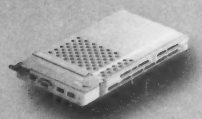
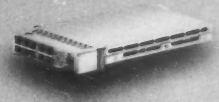


Chassis Management Module



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■ ONLINE CHATTER

RESPONSES TO:

Your Boss Is Spying on You Right Now. What Can You Do About It?

July 23, 2007

If you have to countermeasure, maybe you are doing something against company policy, and maybe you should consider an employer with less stringent guidelines.

Every time I log onto the network, I get an institutional banner indicating that this resource is not private and can and will be monitored. So what? Being in IT, I know that the policies have been put there not to make lives miserable, but to protect the vast majority of users from themselves as well as increase productivity.

■ **Submitted by:** *Fred Dunn*

Why is it called "spying" when an employer wants to review employee productivity? And the author completely ignored the fact that most employees do not have local administrator privileges and cannot install any type of "try to fool the boss" software.

■ **Submitted by:** *SaxPoet*

RESPONSES TO:

Black Hat-Bound Researcher Denied Entry Into U.S.

July 30, 2007

Does anybody want the government to be doing stuff like this? It is supposed to work for us — not against us. The folks who lost thousands of dollars on this should be reimbursed and a formal apology should be publicly made to Thomas Dullien and to Germany with a promise to stop doing this kind of thing once and for all. I sure hope folks write to their Congress critters about this. You cannot prevent terrorism by restricting individual freedom.

■ **Submitted by:** *Icabod*

Do not get angry at the government because paperwork was not properly handled. It seems that [if] a little diligence had been put in beforehand, the situation could have been avoided.

■ **Submitted by:** *Anonymous*

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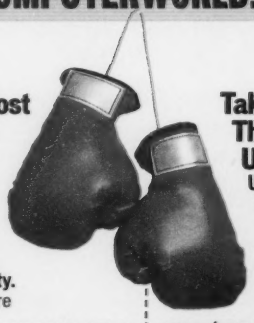


Ding! Mac vs. PC Cost Analysis, Round II

Last month, our editor performed a side-by-side cost analysis of Macintosh and PC hardware. Now, he takes on Mac and PC software and costs out the ever-elusive price of reliability.
computerworld.com/software

Take Control: The Ins and Outs of Unlocked Phones

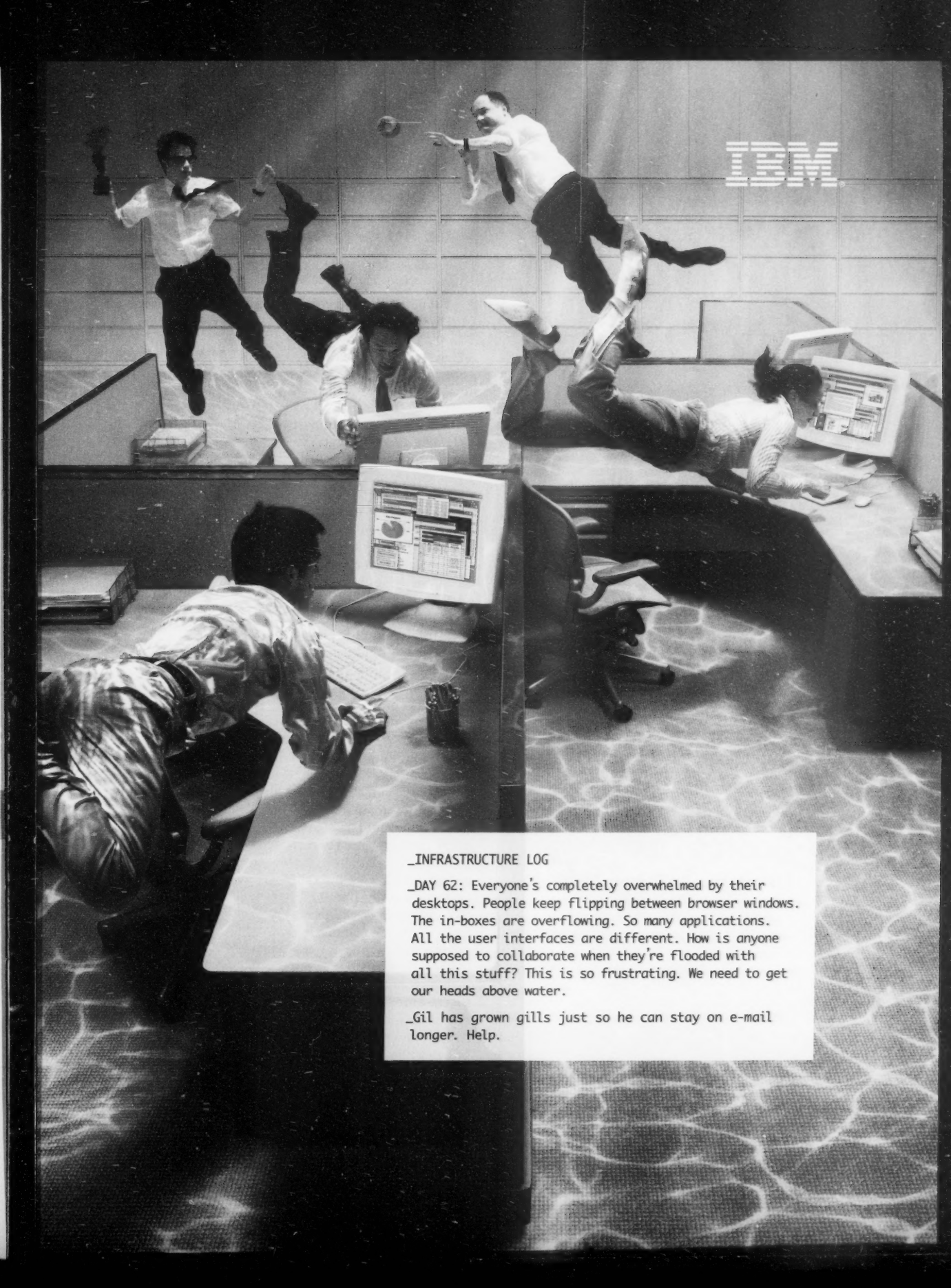
Unlocked phones can save users money and provide features unavailable from cellular operators. Here's the lowdown on how to get unlocked phones and whether they're the right choice for you.
computerworld.com/mobilewireless

Build Your Data Center Here: The Most Energy-Efficient Locations Across the U.S.

A new study looks at both the price of electricity and the carbon output for a hypothetical data center at 21 different locales – and the results may surprise you.
computerworld.com/servers

Vista's BitLocker Encryption: All It's Cracked Up to Be?

The BitLocker encryption built into higher-end versions of Windows Vista goes a long way toward locking out intruders at the boot-drive level, but it's neither 100% hassle-free nor 100% secure.
computerworld.com/security


IBM
_INFRASTRUCTURE LOG
_DAY 62: Everyone's completely overwhelmed by their desktops. People keep flipping between browser windows. The in-boxes are overflowing. So many applications. All the user interfaces are different. How is anyone supposed to collaborate when they're flooded with all this stuff? This is so frustrating. We need to get our heads above water.
_Gil has grown gills just so he can stay on e-mail longer. Help.

News Digest

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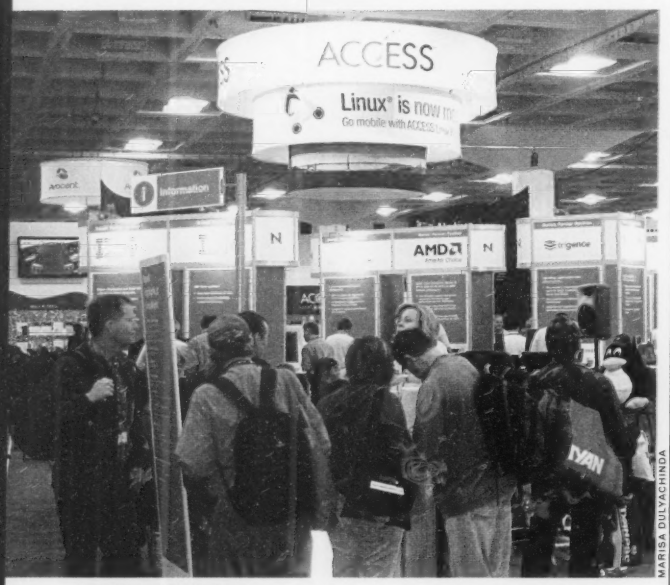
THE WEEK AHEAD

TUESDAY: Microsoft will release nine software patches, six rated "critical," as part of its monthly set of security fixes.

TUESDAY: Sanjay Kumar, former chairman and CEO of what is now CA Inc., is scheduled to report to a federal prison in Fairton, N.J., to begin serving a 12-year sentence for his role in an accounting fraud scheme at the software vendor.

THURSDAY: Hewlett-Packard plans to report the financial results for its fiscal third quarter, which ended July 31.



MARISA DULYACHINDA

OPEN SOURCE

LinuxWorld Draws Both Open-Source Devotees And Curious Tire-Kickers

SAN FRANCISCO – Last week's LinuxWorld Conference & Expo drew a broad cross section of users, from cautious onlookers trying to gauge how Linux and other open-source software could fit into their organizations to converts hoping to expand their use of such technologies.

For example, Hai Nguyen, a branch-office server administrator at Sierra Pacific Mortgage Inc., said he was searching for data backup and disaster recovery tools for the Linux and open-source infrastructure he supports at the in Folsom, Calif.-based mortgage company.

Nguyen said Sierra Pacific runs the CentOS version of Linux on the file, Web, database and e-mail servers that support its 650 end users, all of whom have Windows PCs.

Stewart Savage, director of IT at the Fairfield-Suisun Unified School District in Fairfield, Calif., said the school system first brought Linux into its data center in 2002, primarily to cut costs. Now it uses Novell Inc.'s SUSE Linux to support its Oracle databases and myriad applications, such as a Web content filtering tool.

Savage noted that the school district is also a long-time user of NetWare, Novell's networking software. "We try to do whatever we can with NetWare and Linux," he said.

On the other hand, Dublin, Calif.-based Ellie Mae Inc., which provides an electronic transaction infrastructure for the mortgage industry, is only lightly using open-source software, said Chris Lin, its vice president of infrastructure and e-commerce. Many of Ellie Mae's critical business applications are older programs that would have to be completely rewritten to run on Linux — and that would be cost-prohibitive, Lin said.

Over time, he hopes to plug open-source products into Ellie Mae's computing architecture to replace existing proprietary applications, including ones that monitor the entire loan cycle for clients. But, Lin said, "we're not just jumping in. It's more or less a phase-in approach."

One roadblock to moving to open source quickly, he added, is that it's still hard to find developers and other IT workers with the necessary skills.

— Todd R. Weiss

WINDOWS

Vista Left Off Core IT Roster For Olympics

BEIJING – Windows Vista is being relegated to water boy status at next summer's Olympic Games here, and wireless networking won't even get to play a supporting role.

The Beijing Organizing Committee has opted to run Windows XP on all PCs handling vital processing chores, Lenovo Group Ltd. executives said at a press briefing. Vista will be used only in Internet lounges that will be open to athletes during the games, which are slated to begin Aug. 8, 2008.

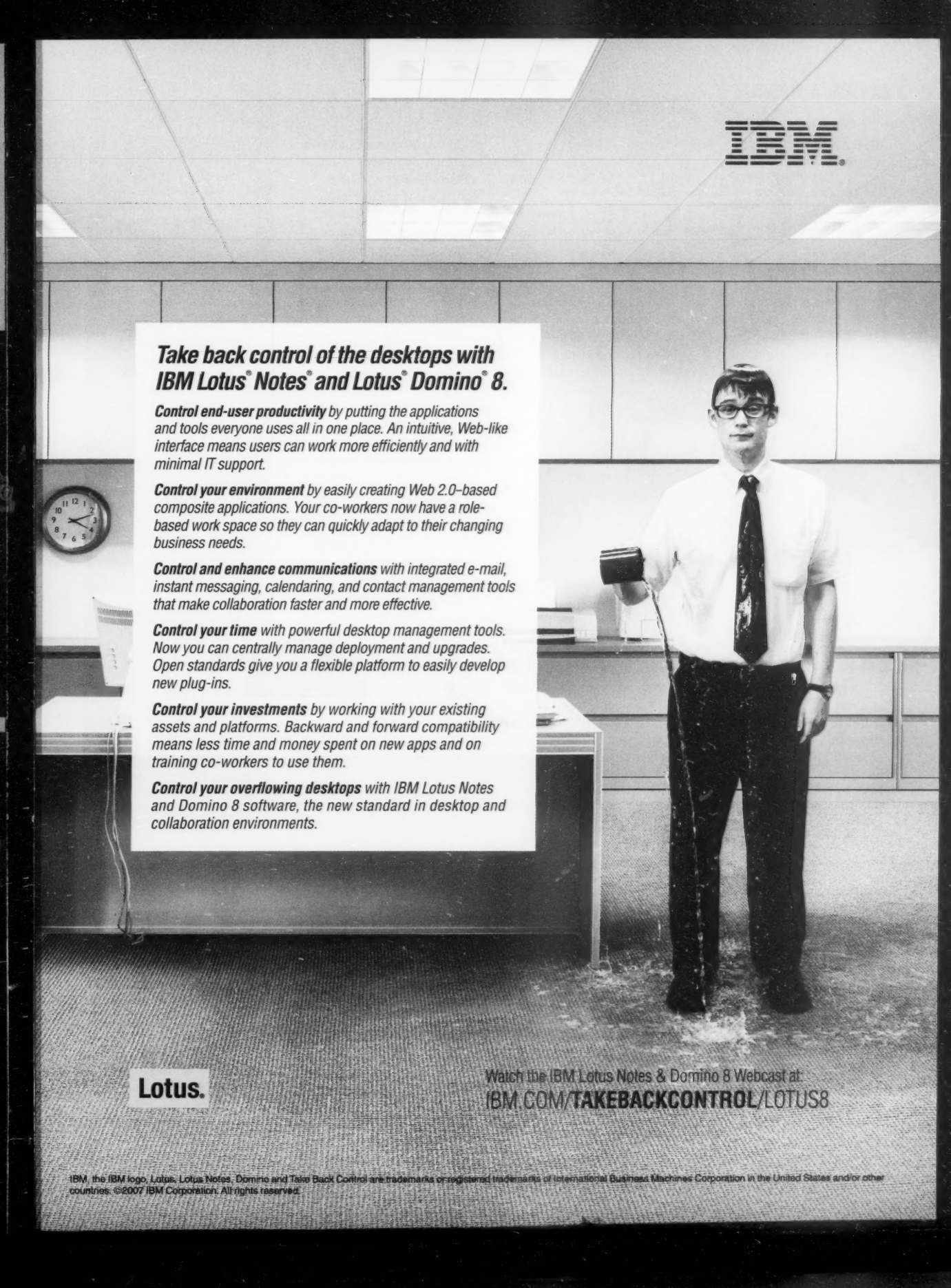
ASSOCIATED PRESS

The main stadium for the 2008 Olympics.

Wireless networking equipment has also been deemed too risky. "At the Olympics, we need the most reliable and stable systems," said Leon Xie, director of Olympic technology and sponsorship at Lenovo.

The vendor has already delivered a total of 17,000 desktop PCs and 800 laptops to the organizers in Beijing, along with 700 servers and 2,000 printers.

– DAN NYSTEDT, IDG NEWS SERVICE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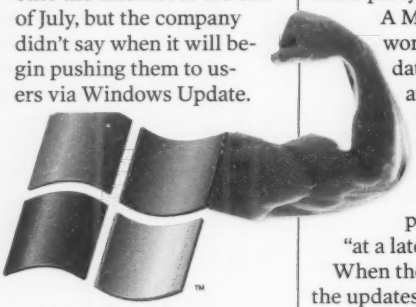
OPERATING SYSTEMS

Microsoft Updates Vista in Bid to Boost Speed, Reliability

Microsoft Corp. last week released a pair of Windows Vista updates that had leaked onto the Internet at the end of July, but the company didn't say when it will begin pushing them to users via Windows Update.



One of the updates is pegged as a performance booster for the new operating system, while the other addresses reliability issues. They include a long list of nonsecurity bug fixes, including one to improve the speed of Vista's wake-from-hibernation function and another that's designed to more quickly calculate the time needed to copy or move large directories.

In addition, several fixes are intended to resolve compatibility glitches between the operating system and third-party video drivers.

A Microsoft spokeswoman said the updates will become available through Windows Update, the software vendor's automated patching service, "at a later date."

When the previews of the updates found their way onto the Internet, there was speculation that they were related to the upcoming Vista Service Pack 1 and that they might even be harbingers of SP1's release.

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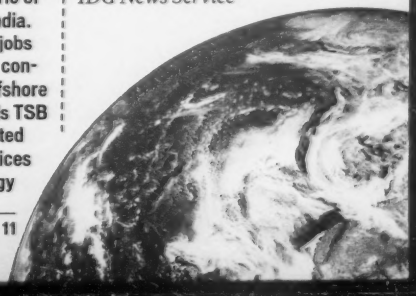
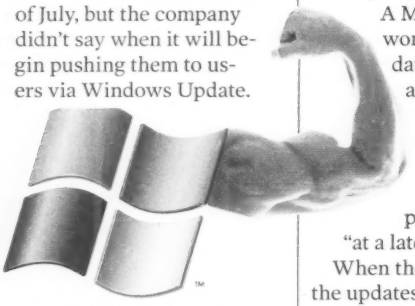


OPERATING SYSTEMS

Microsoft Updates Vista in Bid to Boost Speed, Reliability

Microsoft Corp. last week released a pair of Windows Vista updates that had leaked onto the Internet at the end of July, but the company didn't say when it will begin pushing them to users via Windows Update.



One of the updates is pegged as a performance booster for the new operating system, while the other addresses reliability issues. They include a long list of nonsecurity bug fixes, including one to improve the speed of Vista's wake-from-hibernation function and another that's designed to more quickly calculate the time needed to copy or move large directories.

In addition, several fixes are intended to resolve compatibility glitches between the operating system and third-party video drivers.

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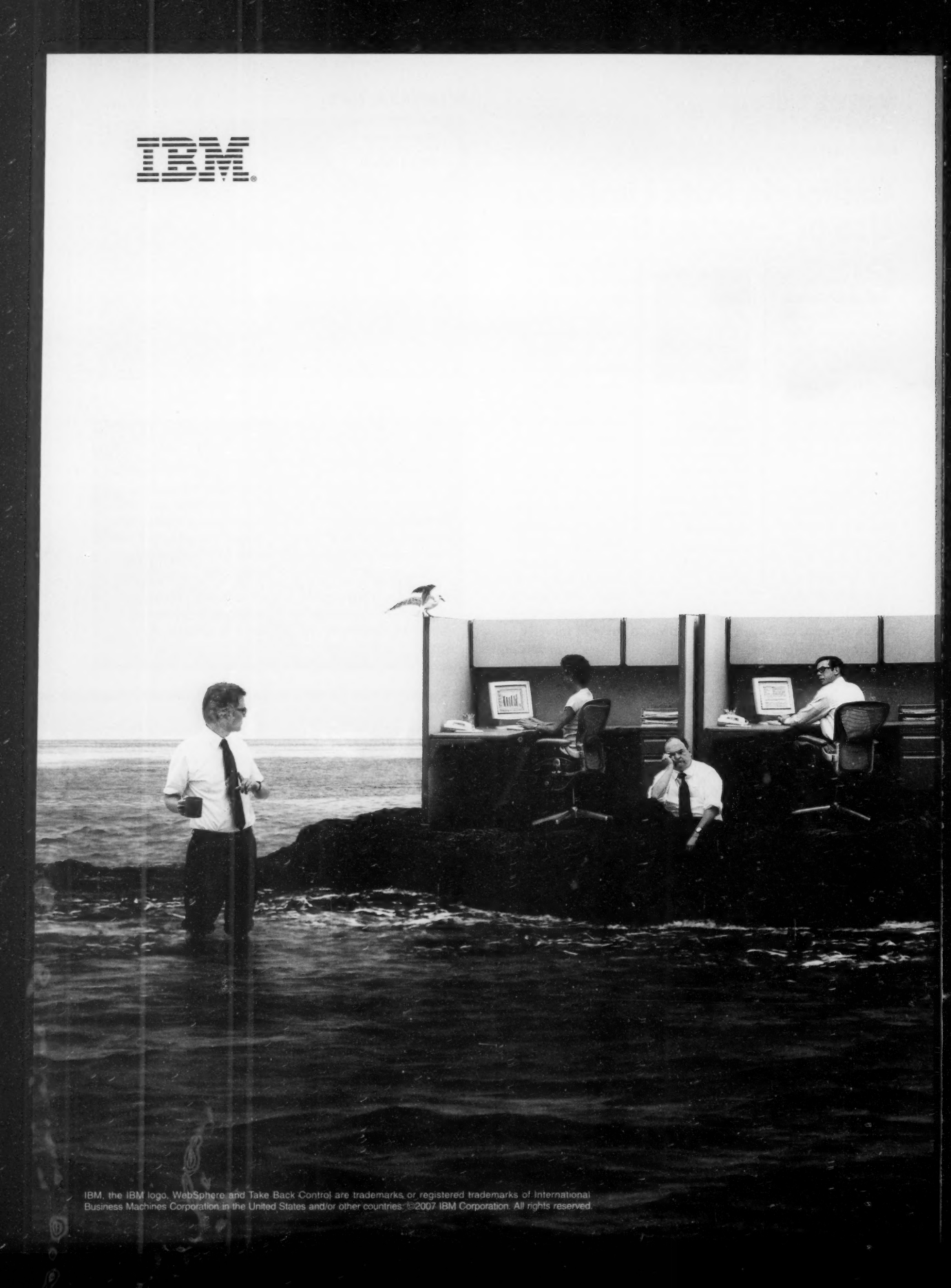

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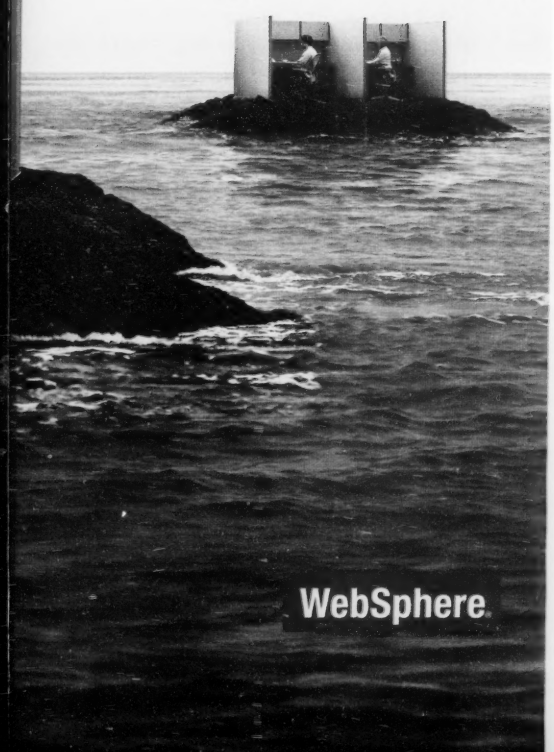


_INFRASTRUCTURE LOG

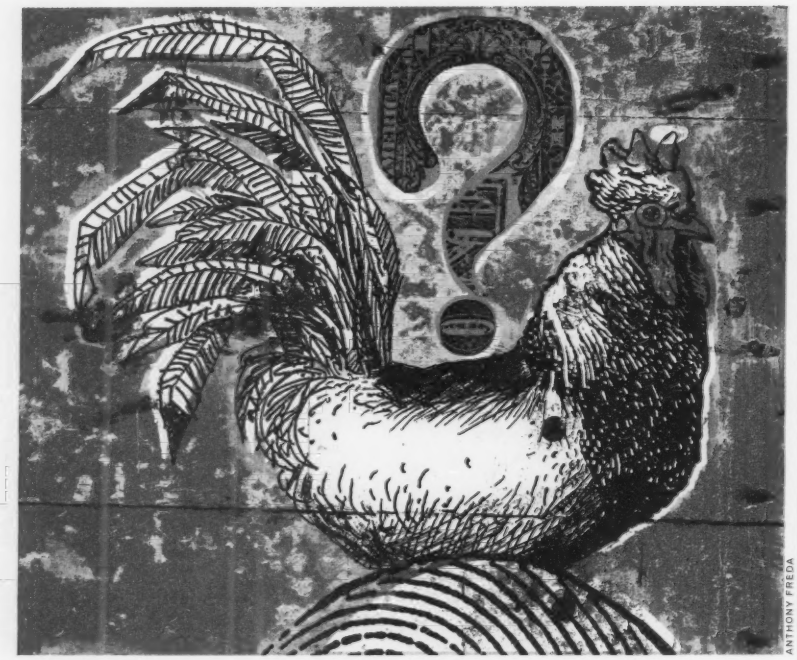
_DAY 84: Feeling really disconnected. We're not getting the most out of our existing assets. Service and application integration is a nightmare. Our connections are restrictive. We've got to stop working on these islands.

_Please rescue me from this lack of connectivity.

_DAY 87: I've taken back control with IBM WebSphere solutions. Now we can service-enable and connect our existing assets for mission-critical goals. We can reuse existing applications and save money by eliminating redundant systems. Now we're ready for any SOA integration project.

_Plus, no more jellyfish stings.

Download the enterprise service bus white paper at:
IBM.COM/**TAKEBACKCONTROL**/CONNECT


ANTHONY FREDA

IT Execs Seek New Ways to Justify Web 2.0

Usual ROI metrics won't work with new tools, users say. By Heather Havenstein

WILLIAM HAYES is working on a pilot project that he hopes will eventually bring wikis, blogs and RSS technologies to employees throughout Cambridge, Mass.-based pharmaceutical company Biogen Idec Inc.

But Hayes, Biogen Idec's associate director of library and literature informatics, knows that proving the worth of such Web 2.0 tools to senior management will be difficult using traditional return on investment metrics.

The ROI "is going to be qualitative for us," Hayes said. "If it improves interactivity and we're getting usage of the tools and there is better communications in the company, then we will consider it a success."

As part of the pilot project, Hayes and his team are creating a wiki to house content generated from research requests, along with feedback on that research. The plan also calls for using NewsGator Technologies Inc.'s RSS server to provide Biogen Idec's researchers with feeds anytime new information about a particular drug is posted online, Hayes said.

He noted that the group is eschewing some traditional paths of gaining management approval for the project — for example, it has opted not to require formal sign-offs from executives in each unit that is expected to use the new tools.

Typically, technologies move forward "only if there is a huge driver, or an executive vice president or better who really wants something to happen," Hayes said. But, he added, "we can essentially do [Web 2.0 projects] in somewhat stealth mode as pilots and prototypes. It's a lot easier to roll things out in a small fashion and allow them to grow in a grass-roots way."

Oliver Young, an analyst at Forrester Research Inc., contended that the difficulty of proving the financial worth of Web 2.0 tools to top executives is the biggest roadblock to corporate use of the technology.

"You are immediately stacked up against everything else IT has to deal with," he said. "Suddenly, all these other initiatives that generally do have good ROI models associated with them become the benchmark."

According to a report released in June, 63% of 275 IT managers surveyed by Forrester were still using traditional ROI benchmarks, such as total cost of ownership, to measure the value of Web 2.0 tools to their companies.

Another 14% of the respondents said they had not yet attempted to assess the value of Web 2.0 tools at all, though Forrester analysts believe that a considerably higher percentage of companies are failing in their efforts to evaluate the technology's ROI.

Young suggested that companies tie Web 2.0 investments to existing business problems and use techniques such as employee productivity surveys to measure the value of the tools.

TradeKing, an online brokerage in Boca Raton, Fla., set up social networking features on its Web site last August to enable users to discuss investment strategies and stock trades.

Don Montanaro, the company's president and CEO, said TradeKing has used Web 2.0 tools since its inception in 2005 because its founders viewed the technology as a key component of their plan to build a "next-generation" online brokerage. That top-level support has eased the process of proving

the ROI of the tools, he added.

"Do we think that we have a stickier relationship with our clients and that we're having lower attrition over time? Yes, we believe that," he said.

For example, Montanaro said that the 2,500 people who participate in TradeKing's online social network — 5% of its total customer base of 50,000 — generate 10% of the company's revenue. The users of the social network are also more likely to refer friends to the company, which helps cut the cost of acquiring new clients, he said.

In addition, TradeKing can measure the number of trades made by members of its community more accurately than it can measure those of nonmembers — a benefit that proves social networking "has grown up," Montanaro said.

Euan Semple, former head of knowledge management at London-based British Broadcasting Corp., once managed a Web 2.0 project there that involved 23,000 employees using an internal bulletin board, 5,000 using a wiki and several hundred blogging.

"In terms of ROI, I knew that it would be a tough one, as the sorts of things that Web 2.0 delivers are to do with better transfer of knowledge and are difficult to quantify," said Semple, who is now an independent consultant.

In its traditional forms, "ROI is a blunt instrument and not designed to measure real value," he added. "It appeals to bean counters but doesn't measure the intangibles in a business."

To prove the value of the Web 2.0 tools to BBC executives, Semple collected the e-mail addresses of satisfied bulletin board users by searching for the word "thanks" in their posted comments. He then asked each of those people about their use of the system.

The technology allowed BBC employees to canvass colleagues for help on projects or to poll workers about major initiatives, Semple said. "Even if all that gets answered are small day-to-day questions, such as where to find things, how to do things or who to talk to, the cumulative effect is huge," he added.

The Los Angeles Fire Department has adopted several Web 2.0 technologies, including blogging and podcasting tools, and established a social networking presence on Web sites such as MySpace and Facebook.

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And over the past few months, the department has generated a buzz in the blogosphere through its use of Twitter Inc.'s microblogging site to send short notes about fires and car accidents to the computers or mobile devices of people who sign up for the service.

Brian Humphrey, a public information officer at the LAFD, said officials at the fire department use four attributes to measure the success of the Web 2.0 tools: their benefits, desirability, justifiability and sustainability.

"We can no longer afford to work at the [slow] speed of government," he said. "We have responsibilities to the public to move the information as quickly as possible . . . so that they can make key decisions."

Humphrey, one of two firefighters who maintain the Twitter blog 24 hours a day, said the project came about as part of the department's move to intensify its Web 2.0 efforts after the devastation that Hurricane Katrina caused along the Gulf Coast in 2005.

Hurricane victims who sought refuge at the Louisiana Superdome in New Orleans "were dying a little bit at a time from a lack of information," he noted. "They thought they were on their own *Gilligan's Island*."

Forrester's Young also advises companies to consider using Web 2.0 tools offered under a software-as-a-service model to help calculate ROI.

That is the tactic Northwestern Mutual Life Insurance Co. has taken with an internal blogging and RSS project, said Andrea Austin, the insurer's assistant director of corporate relations.

The Milwaukee-based company began using hosted blog and RSS technology from Awareness Inc. in June 2006 because it didn't have the resources to implement the technologies internally, Austin said.

Currently, about 100 employees at Northwestern Mutual operate blogs that generate more than 12,000 page views per day, according to Austin. She noted that the software-as-a-service approach also would have allowed the insurer to easily abandon the technology if it didn't work as hoped. ■

RSS Tops List of Web 2.0 Tools, Survey Finds

IN THE WORLD of Web 2.0 technologies, not all tools provide equal value to users.

According to a recent survey of 275 IT managers by Forrester Research, for example, Real Simple Syndication readers are the most valuable Web 2.0 tool of them all. Of the survey respondents, 61% said that RSS technology provides value to their companies.

William Hayes, associate director of library and literature informatics at Biogen Idec, said that using RSS tools to their full potential can help expand a company's internal use of blogs, wikis or online forums.

RSS, he explained, channels information into different queues so end users can prioritize data more easily than if it is just dumped on them via e-mail.

"With e-mail, you get this never-ending flow of information, which pushes the items you want to follow up on below the fold," Hayes said. "As soon as that happens, it disappears for most people."

– HEATHER HAVENSTEIN

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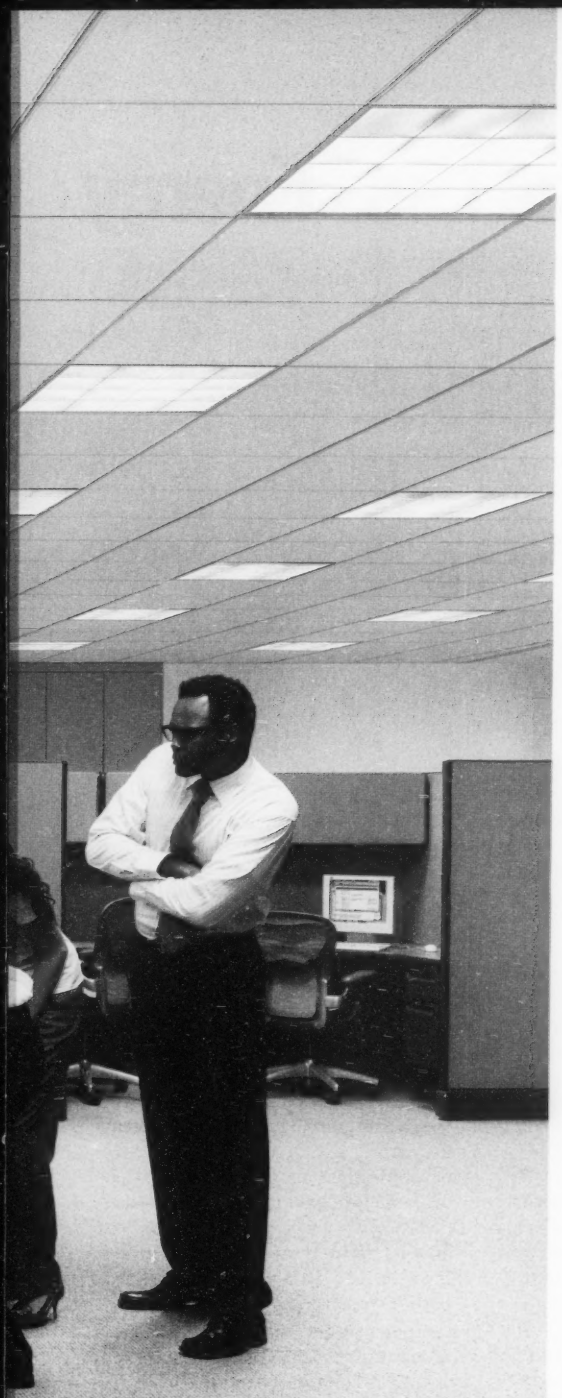


_INFRASTRUCTURE LOG

_DAY 69: All we need is one specific piece of info. Gil almost had it, but his hand cramped. How are we supposed to find trusted business info when these massive volumes of disparate, conflicting information keep pouring in?

_Gil just grabbed a stuffed panda.

_DAY 71: The answer: IBM solutions for leveraging information. Now we can cleanse info and standardize source data fields for consistency and accuracy. I can create a single, comprehensive and accurate record of info across our source systems. Finally, I can provide a unified, trusted view of our information so everyone can make better decisions.

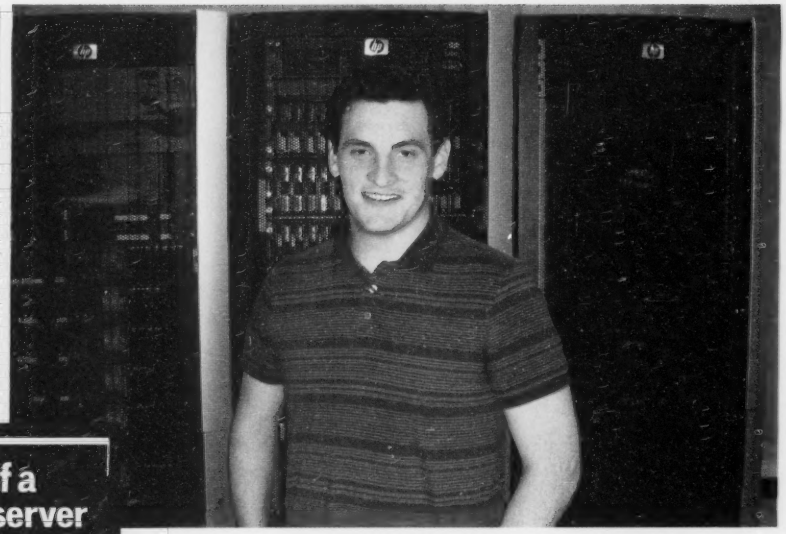
_Our view of our data is now scalable. Just in time—I think we ran out of quarters.

Information Management

Download the Innovation and Competitive Advantage white paper:
IBM.COM/**TAKEBACKCONTROL**/ACCURATE

Feds Push IT to Expend Less Energy

EPA: Status quo means power use in data centers will double by 2011. By Patrick Thibodeau



IT MANAGER Vince Delperdang's environmental science degree is well suited to the era of global warming — especially in light of a prediction by the U.S. Environmental Protection Agency that power consumption in data centers will double over the next four years unless companies become more energy efficient.

In a report issued to Congress this month, the EPA called on IT managers to adopt best practices for managing power usage, install new energy-saving technologies and make going green a priority. Otherwise, they will continue contributing to global emissions problems, the EPA said.

> **"If a server goes down, I could lose my job.**
>
> THOMAS ZIMMERMAN, VICE PRESIDENT OF NETWORK INFRASTRUCTURE, CAVERN TECHNOLOGIES

"IT is just a complete burden on the environment," said Delperdang, who manages IT operations at O'Donnell/Atkins Co., a real estate brokerage firm in Irvine, Calif. The burden he speaks of also includes other aspects of IT, such as the solvents used in manufacturing and the mercury built into chips.

Delperdang's combined interest in computers and the environment has sparked his interest in reducing IT's power consumption. Unlike many data centers, his is metered so that he can measure how much energy different technologies use. When Delperdang moved off of four direct-attached storage systems to a storage-area network from Pillar Data Systems Inc., the meters enabled him to track power usage levels, so he knows he was able to triple storage capacity and add new servers without consuming more energy.

Standard Performance Evaluation Corp. (SPEC), a nonprofit company that creates performance benchmarks widely used by server vendors, plans to publish a power-usage test suite by year's end.

Delperdang said he thinks the energy efficiency data produced by the SPEC benchmark will be overstated in the same way that fuel mileage estimates for cars typically are. "But as long as it's a level playing field, the information may be valuable," he said.

CFOs MAY FORCE ISSUE

Ken Brill, founder and executive director of The Uptime Institute Inc. in Santa Fe, N.M., said IT managers should pay attention to the EPA's report and take action to cut their power usage.

But, he added, big changes may not take place until companies' chief financial officers take notice of data center power bills and seek to reduce them. "Either IT can deal with this, or the CFO is going to deal with it," Brill said.

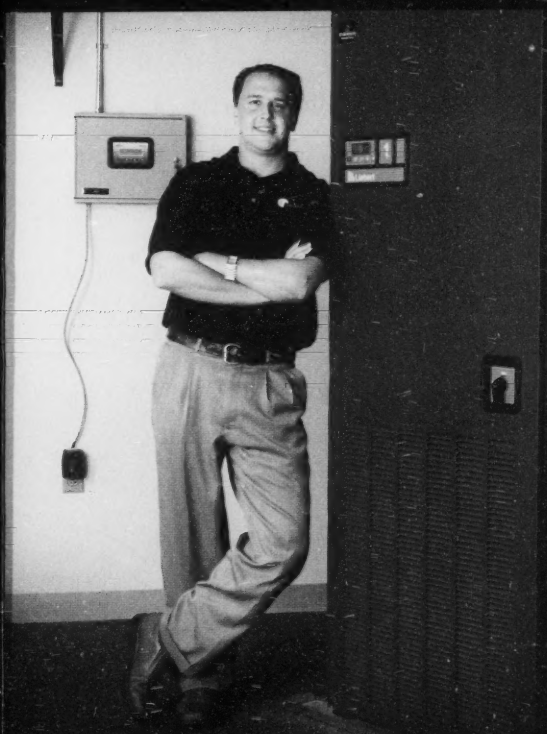
Jonathan Koomey, a staff scientist at Lawrence Berkeley National Laboratory who has been advising the EPA on data center energy issues, predicts that SPEC's new benchmark will prod vendors to improve the energy efficiency of servers. It also should encourage "sensible decision-making" by users, Koomey said, adding that they now have no way to base a purchasing decision on energy efficiency.

But any choice of servers likely will take more than energy efficiency into account. That's the case for Thomas Zimmerman, vice president of network infrastructure at Cavern Technologies, a Lenexa, Kan.-based company that offers collocation and disaster recovery services from a data center built 125 feet underground in a former mine.

Environmental issues are important to Zimmerman. Because the air temperature in Cavern's data center typically stays between 60 and 75 degrees, the company's cooling costs are about 60% less than they would be at ground level, he said. In addition, he uses techniques such as positioning IT equipment in a way that maximizes airflow and eliminates data center hot spots.

But Zimmerman said that while he will look at the results of the SPEC benchmark, the most important factor in a server buying decision will be whether he feels the system he's choosing is reliable and will get the job done. "If a server goes down," he said, "I could lose my job." ■

Green Horizons
To read more about the environmental issues IT managers are facing, see Bart Perkins' column on **page 44**.



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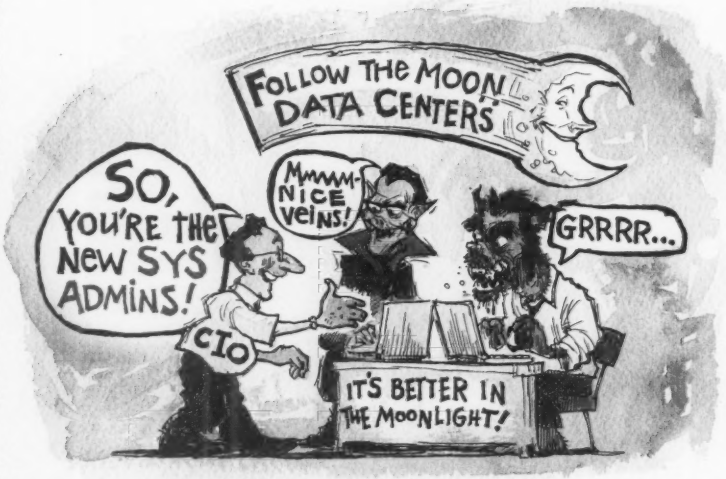
On the Mark

HOT TRENDS ■ NEW PRODUCT NEWS ■ INDUSTRY BUZZ BY MARK HALL



MATTHEW FAULKNER

Tackle Data Center Energy Costs With New Software

IF YOUR latest task is to cut energy consumption in the data center, you're probably analyzing your hardware setup. But Sam Charrington suggests that your best bet might be new software. The vice president of product management and marketing at Appistry Inc. in Creve Coeur, Mo., says the company's EnergySaver tool, an add-on to its Enterprise Application Fabric that will be available in October, constantly monitors the application workload on any number of servers and can automatically put unneeded machines into sleep mode or turn them off. When the workload increases, the software brings servers back online as necessary. Charrington says that systems administrators establish utilization rates for a system's CPUs, and EnergySaver handles the rest. Given that many apps are overprovisioned on the hardware side, Charrington claims that you can save a lot of energy with, well, EnergySaver. He predicts that in the near future, IT shops will design app workloads to "follow the moon" by running them in data centers around the globe at times when energy costs are lowest — usually at night. Finding the werewolves and vampires to staff those nighttime data centers might be your toughest task.

Cut IT power costs with EnergySaver, Charrington says.

OpenProj Takes on Microsoft Project

Marc O'Brien, CEO of Projity Inc. in San Mateo, Calif., figures his OpenProj software could take market share away from Microsoft Project. One reason he's optimistic is that Microsoft Corp. doesn't bundle its popular project management product with its ubiquitous Office software; another is that OpenProj is free. Yes, OpenProj is another in an endless stream of open-source tools pounding away at Microsoft's desktop dominance. O'Brien claims that OpenProj is compatible with Microsoft Project and has most of the latter's bells and whistles. And it will work with Projity's Project-On-Demand online service, letting you synchronize what you do offline with the software-as-a-service version. O'Brien says OpenProj works on Linux and Macs as well as Windows and will come bundled with various Linux distributions. Expect the final release in early Q4.

$450
Price of Microsoft Project on Amazon.com.

A2P msgs tk 4 us biz

Although it's common elsewhere for businesses to send application-to-person (A2P) text messages to cell phones, U.S. carriers have been slow to offer the service, says Steven Livingston, chief marketing officer at mBlox Inc. in Sunnyvale, Calif. He predicts that will change next year. Part of the problem, he says, is that carrier billing systems are set up to charge both the sender and the recipient of a message. Carriers like it that way, since they get to bill both parties. But Livingston says businesses are pressuring carriers to give them access to what he calls the "world's largest distribution channel for media" — the 3 billion or so mobile phones that London-based Wireless Intelligence says will be in use by year's end. He doesn't think mobile users will consider A2P messages to be spam. For one thing, they'll be sent only to those who opt in. For another, carriers aren't about to risk losing customers they have fought tooth and nail for to business spammers. He suggests that if you're not looking at ways to get your message to cell-phone-toting customers, you'd better get cracking; your competition is probably already working on it. ■

Free-to-user messaging is coming, Livingston predicts.

THE SPYWARE PROBLEM IS BIGGER THAN YOU THINK

RECENTLY HACKERS MANAGED TO TRANSFER ALMOST HALF A MILLION DOLLARS FROM A CALIFORNIA CITY'S GENERAL FUND TO BANKS ACROSS THE COUNTRY. THEY DID IT BY USING A KEYLOGGING PROGRAM THAT THE CITY TREASURER ACCIDENTALLY DOWNLOADED. THIS PIECE OF SPYWARE GAVE THE HACKERS BANK ACCOUNT LOGIN & PASSWORD INFO. HAD THE HACKERS BEEN ORGANIZED PROFESSIONALS, THIS MIGHT HAVE GONE DAYS WITHOUT BEING NOTICED, WITH THE MONEY BEING SENT OFFSHORE WHERE IT'S HARDER TO TRACE

YOUR COMPUTER. SO IT'S NOT JUST A PROBLEM FOR PEOPLE WHO SURF THE WEB FOR FUN. IT CAN AFFECT THOSE RUNNING A BUSINESS OR EVEN CITY HALL. OF COURSE, THERE'S A SMARTER SOLUTION. ONE THAT FINDS 94 PERCENT OF THE MORE THAN 200,000 SPYWARE DEFINITIONS AGREED UPON BY THE ANTI-SPYWARE COALITION.

IN THE SPRING OF 2007, A MAJOR RETAILER REPORTED HACKERS HAD BROKEN INTO THEIR RETAIL OPERATIONS SYSTEMS, ACCESSING CREDIT & DEBIT CARD INFO FROM STORES AROUND THE U.S AND PUERTO RICO. EXPERTS ESTIMATE THAT AS MANY AS 45.7 MILLION CREDIT & DEBIT CARDS HAVE BEEN STOLEN.OVER $8 MILLION IN RELATED FRAUD HAS BEEN REPORTED TO DATE AT $10 TO REPLACE EACH CARD & $180 TO HANDLE EACH CALL, IT'S EASY TO SEE HOW THIS BREACH IS GOING TO COST BILLIONS TO REMEDIATE. AND THE UNTOLD COSTS TO THE BRAND HAVE YET TO BE SEEN.

There is a better way to protect your company from spyware.

Spyware is more insidious and costly than viruses, because most of it goes undetected. One Fortune 100 retailer recently found 6900 undetected spyware programs, 586 Trojans and 21 keyloggers despite running freeware plus protection from a leading antivirus provider. You see, most antivirus providers toss in some average spyware protection (about 56% effective) with their product, and claim it's safe. Only Webroot® AntiSpyware Corporate Edition could find and remove the critical malware for this retailer.

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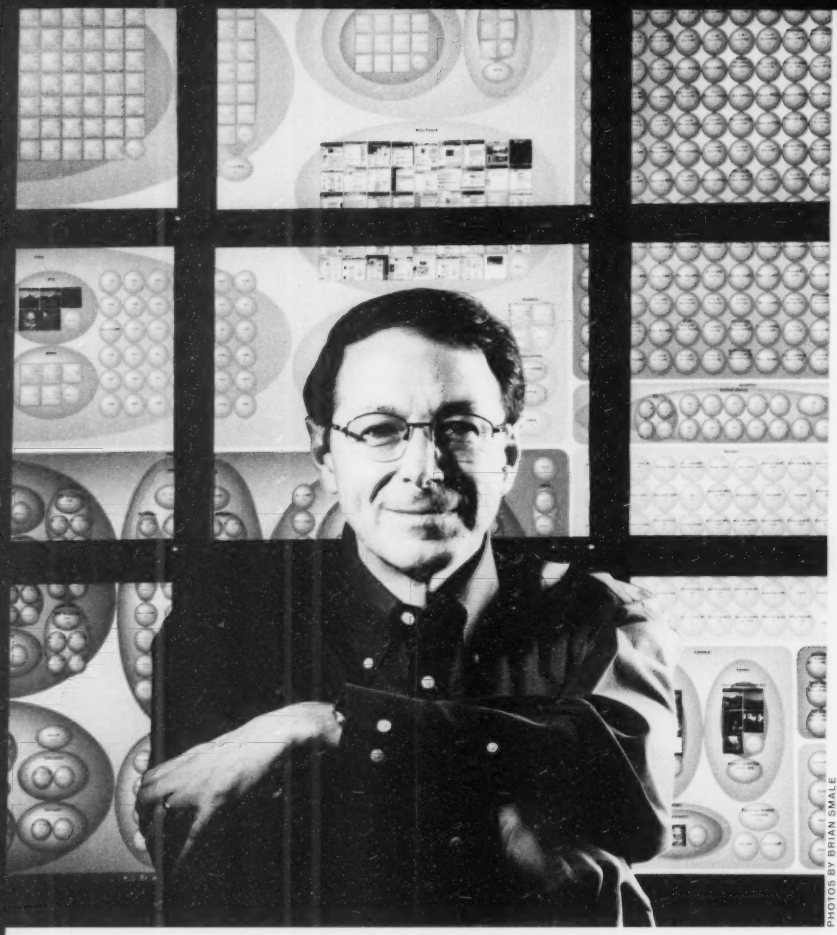

PHOTOS BY BRIAN SMALE

Dossier

Name: Richard F. (Rick) Rashid

Title: Senior vice president, research (and formerly a computer science professor at Carnegie Mellon University)

Organization: Microsoft Corp.

Favorite non-Microsoft technology: "I'm a pretty big fan of almost everything that looks like technology. I love gadgets."

Technology pet peeve: "Cell phones. I just wish they would work right. I think voice would be a really good killer application."

Hobby: "Unfortunately, I think my work is my hobby. I just enjoy computing; I enjoy programming."

Role models: "At Carnegie Mellon, it was Allen Newell [the late pioneer in artificial intelligence]. And at Microsoft, Jim Gray [the late researcher in database and transaction processing systems]. Gray was the kind of person you'd want your kids to grow up to be like."

Epitaph of choice: "I developed Alto Trek [in 1972], one of the very first networked computer games. The things you do when you are young you take with you the rest of your life. So, on my tombstone: 'Rick Rashid: He developed Alto Trek.' "

■ THE GRILL

Rick Rashid

Microsoft's top research exec talks about working on **the next big thing**, **exterminating bugs** and living with **the Alto Trek legacy.**

What major change is coming in IT in the next few years? Something that will have a profound impact, and it's already happening, is the cost of storage. We've really made a transition from having to worry a lot about getting rid of things, to the point where anything we care about we can keep. We've reached the point of human-scale storage. A terabyte of disk space could literally hold every conversation you have ever had. It could hold a photograph taken every minute of your life.

What does that mean for business? It really changes the nature of how we think about solving problems, and it's showing up in computer science in a lot of different ways. For example, a lot of the technologies we have historically thought of as "machine learning" are very data-driven. In the old days, we often couldn't do things like machine [language] translation or certain kinds of vision algorithms or certain kinds of analysis, because we didn't have enough data. Now, suddenly you are seeing a shift toward these machine-learning or statistical techniques. In 1997, you probably could have stored the whole Internet in a terabyte, but now that's just one person's hard drive.

What's the next big thing to come out of Microsoft Research? The next big thing is often defined by society. It's what people do, and scientists and engineers are often quite surprised by that. But one of the things you are seeing is the pushing down of intelligence into many kinds of devices. There's a lot of work going on in sensors and sensor net-

Continued on page 24

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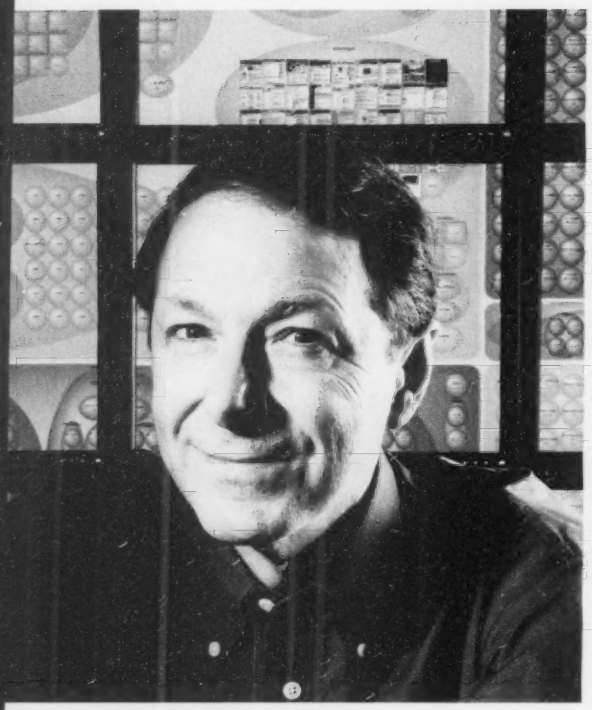


A terabyte of disk space could literally hold every conversation you have ever had. It could hold a photograph taken every minute of your life.

Continued from page 22

works. It's having a big impact in areas like environmental sensing, in reading energy consumption, for example. We are working on how we can measure, using distributed environmental sensors, what's happening in large data centers so we can reduce cooling costs. In user-interface technology — you saw the Microsoft Surface announcement. I view that as just scratching the surface of what we can do.

Over the next few years, the cost of an LCD display on a square-inch basis will cross over that of a whiteboard. That completely changes the notion of what's active and what's not, or what's an interaction surface and what's not.

What's your response to those who say that Microsoft is more of a me-too company than a true innovator? People and corporations get a rap, and it's very hard to change that. We are one of the top publishing organizations in the world. You go to a major computer science conference and you'll see more papers from Microsoft Research than any other organization. We really are leading in a large number of different areas. We have grown our research group faster than the rest of the company. We've grown on average by 50 researchers a year over the past 15 years. That's like adding a [University of California] Berkeley computer science department faculty every year.

What are you doing to catch up with Google? Search engines today take a few words and come back with a bunch of articles you have to read to find your information. We are doing research on how you can actually extract the answer to a question the user has posed.

How do you answer those who say Microsoft's software is buggy? Why can't you fix buffer overflows? We know how to fix buffer overflows, and we have done it in most of our software. Over time, hopefully, it will be done in all of it. But we don't control all the software that ships with Microsoft systems, and a mistake anywhere is still going to be a vulnerability. In Vista, in our device developer kit, we released a program proof tool that helps eliminate a fairly large class of problems.

Over the years, we have come up with much better technology for being able to prove specific properties of very large bodies of code — millions of lines.

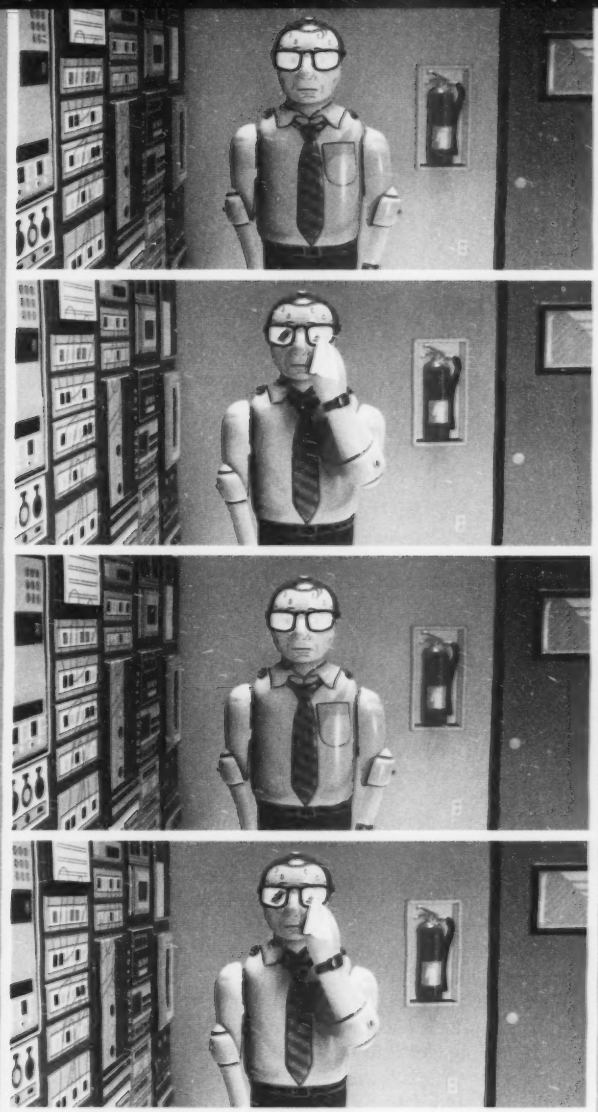
The issue is that it's not just a question of implementation; it's also an issue of design. We have to know how to design a system so that the design itself doesn't have flaws, and that's very difficult. We can prove a property of a program but not its correctness, because we don't have a way of saying what correctness would be. We may do what we meant to do and still not solve the problem because we didn't understand the problem correctly.

So, how are you attacking these design problems? We are working on a language support that allows you to be more precise about what you meant. We have this thing we developed called Spec# — a variation on C# — that allows you to include specification information into the program. That allows our proof tools to prove whether those specs are, in fact, true for the code you have written. We are also working on operating system architectural features that allow us to combine proofs — from the bottom to the top — to be able to say whether an entire system and its applications, taken as a whole, have a specific property.

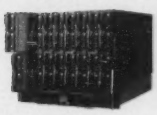
Some people have suggested that Vista is Microsoft's last major Windows release. I would put that comment in the category of those quotes from the ancient Greeks: "We have learned everything we are ever going to learn, and we are done now." When I look at operating systems, there is so much work still to be done.

But perhaps the next operating system will be a fundamentally new kind? With Vista, we already have a fundamentally new OS from, say, Windows 95 or 98. We are not in the same space anymore. Will there be an OS that is more integrated with the Web, more distributed across a large number of machines, that does a better job of taking advantage of new forms of input — computer vision or voice or gestures? A new OS that really makes good use of multiprocessing? Well, sure. At what point will you call that something different? I don't know.

— *Interview by* **Gary Anthes**



AMD 64 Opteron

BREAK THE CYCLE. 

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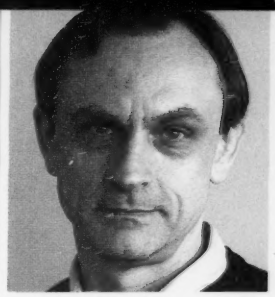
■ OPINION

Michael H. Hugos

The Agility Factor



THE MOST POWERFUL player in the 21st-century global IT supply chain is the business end user. All the other players in the chain — in-house IT organizations, IT vendors, resellers and consultants — need to position themselves to best respond to end users' needs. That's because end users now have so many options when it comes to consuming IT, ranging from using software-as-a-service packages to developing systems entirely in-house.

Meanwhile, thanks to the global economy and high-bandwidth Internet connectivity, IT activities whose value is produced mostly from low-cost and highly efficient operations are being done where the costs are lowest. Only those whose value is derived through the innovation of highly responsive operations are being done close to the end user.

Given these broad outlines of the global IT supply chain, the players who need to respond to end users' needs must position themselves depending on the way they answer this question: How am I going to deal with agility? By agility, I mean continuous close coordination between business and IT people to respond effectively to constantly changing situations. Some products and services really do not require high amounts of agility, but others do. And not everyone is cut out to be agile.

Agility is needed if customers value a product or service primarily because it quickly responds to their evolving needs. If it is valued mostly for its low cost or because of the part it plays in keeping operations running reliably, agility isn't a big factor. What's important in those cases is efficiently maintaining the status quo. The more commoditized a product or service is, the less agility is needed to support it.

Perhaps the ultimate IT commodity service is data center operations. We do it so well that business people take it for granted and care only about getting it at the lowest price. This service and its related products are inevitably going to wind up located in places where the cost of labor is low.

■ Are you going to be agile, or are you going to work with commodity IT?

The ultimate in IT agility, on the other hand, is epitomized by businesses and services like Google, iTunes and Facebook, which combine an array of technologies to quickly create and deliver new services to a fast-growing and fickle customer base. Their agility keeps them fresh so that their service offerings keep evolving as the needs and tastes of their customers change. If they couldn't keep up with those needs and tastes, their customers would go elsewhere. Somewhere between these two extremes in commodity and agile IT is where you find most of us in the IT business.

For reasons of simple economics, businesses will continue to outsource data center and related operations. The efficiencies and economies of scale offered by IT utility companies are already compelling and will only become more so. These IT utilities are evolving from the combination of telecom providers, hardware and software vendors, and data center operators.

As companies outsource the activities that are being handled by IT utilities, they are increasingly turning their attention to the need to be responsive to their customers. That requires agile IT, since everything a company does these days has IT running right down the middle of it. Every new business venture, product or marketing campaign needs agile IT support to prevent the business end users from being overwhelmed by the flood of details and demands that go along with doing new things.

If they're going to survive, in-house IT groups and the vendors and consultants they work with are going to have to focus primarily on agility and delivering the responsiveness that their business users value.

Those IT professionals and vendors that decide that agility is not their strength are going to be doing business not with end-user businesses, but with IT utilities. ■

Michael H. Hugos *is a principal at the Center for Systems Innovation and a speaker. A member of the 2006* Computerworld *Premier 100 IT Leader class, his newest book is* The Greatest Innovation Since the Assembly Line *(Meghan-Kiffer Press, 2007). He can be reached at www.MichaelHugos.com.*

Don't touch it. Don't move it.

Contrary to what they might say, VoIP isn't synonymous with "starting over" (a.k.a. ripping and replacing). That's because it's no longer about hardware. It's actually about software. Now you can keep your hardware—your PBX, your gateways, even your phones. Move to VoIP with software. Software that integrates with Active Directory,® Microsoft® Office, Microsoft Exchange Server, and your PBX. Maximize your current PBX investment and make it part of your new software-based VoIP solution from Microsoft. You're much closer to VoIP than you realize. Learn more at microsoft.com/voip

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The Rise and Demise of Network Computing
Web Informant – It is sad when something that you brought into this world leaves it, and I am feeling a bit blue about the demise of Network Computing magazine, announced today. Even though I haven't been involved in the publication in many years, it still was my baby – it was back in the summer of 1990 [...] read more
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Building A Data Center in 60 Days
Data Center Knowledge – The facilities staff at Pipe Networks is live-blogging its bid to build a new data center in just 60 days. The effort began back on April 16 with an empty room in Brisbane, Australia, and is entering the stretch run with a completion deadline of 9 am EST Friday (June 15). Pipe Networks has put the...
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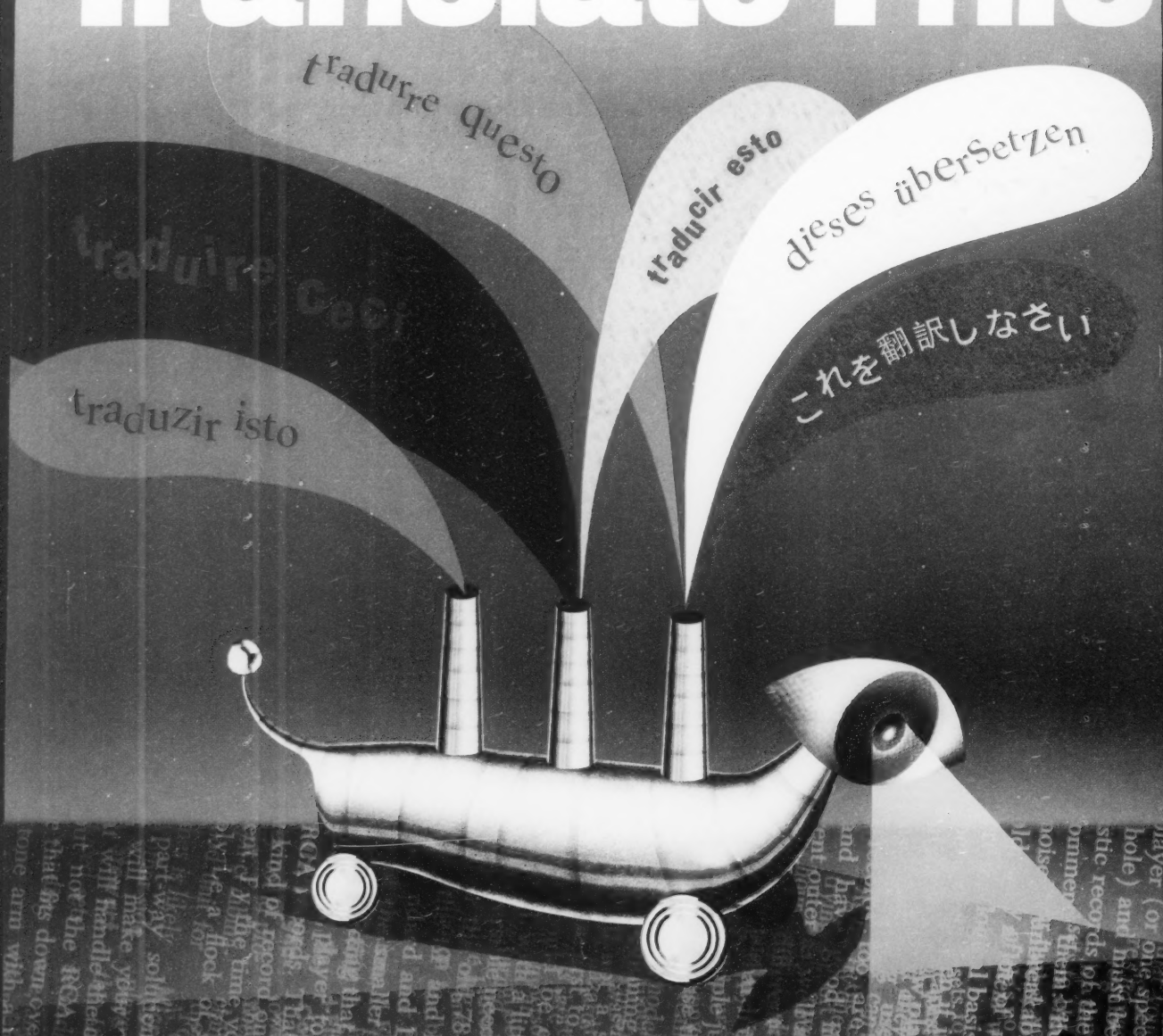


AUTOMATED TRANSLATION TOOLS have been around for a long time, and new techniques are boosting their performance. But use them with caution. **BY GARY ANTHES**

SOMETIMES THINGS GET LOST IN TRANSLATION. For example, type the question, "Automated language translation — is it an idea whose time has come?" into Google's English-French translator, then enter the result of that into its French-German translator, and finally ask Google to translate the German back to English, and you end up with this: "Automated language translation is it an idea, from which the time came?" Not too bad.

Now do the same with this sentence: "Reboot your computer and try again." You'll wind up with this: "Their computer and attempt still again load." Perhaps not good enough for your multilingual user manual.

Language translation software isn't likely to allow you to lay off your bilingual staffers — at least not right away. But applied with discrimination and lots of preparation, translation tools can be fantastic productivity aids. And researchers say new approaches to this old discipline are greatly improving the performance of the tools.

Ford Motor Co. began using "machine translation" software in 1998 and has so far translated 5 million automobile assembly instructions into Spanish, German, Portuguese and Mexican Spanish. Assembly manuals are updated in English every day, and their translations — some 5,000 pages a day — are beamed overnight to plants around the world.

"It wouldn't be feasible to do this all manually," says Nestor Rychtyckyj, a technical specialist in artificial intelligence (AI) at Ford.

The car maker uses Enterprise Global Server from Systran Software Inc. in San Diego, but licensing the software was just the first step in automating Ford's translation activities. High-level English instructions, such as, "Install the muffler," are written by engineers and then parsed by a homegrown AI program into unambiguous detailed directions, such as, "Attach bracket No. 423 using six half-inch bolts." Each instruction is then stored as a record in a translation database.

Ford also had to develop dictionaries of terms and phrases that are unique to automobile assembly and to Ford. "Most of the effort we spend on this system is building glossaries, and they change frequently," Rychtyckyj says. "But your translation results are a lot better if you put in a lot of work upfront."

Still, he says, it may be easier to maintain a glossary than to find a translator who speaks English and Portuguese and understands automobile technology and terms.

> **"Your translation results are a lot better if you put in a lot of work upfront.**
>
>
>
> **NESTOR RYCHTYCKYJ,** TECHNICAL AI SPECIALIST, FORD MOTOR CO.

Systran's tool uses a tried-and-true translation technique called rules-based translation. Such systems use bilingual dictionaries combined with electronic style guides containing usage and grammar rules. (For example, in English, the verb usually follows the subject, but in German, it often comes at the end of the sentence.) These commercial translators are typically supplemented with application-specific glossaries like those used at Ford.

They are often also combined with "translation memories," databases of previously translated text in the form of source and target sentence pairs. These memories are usually compiled over time by users. If the translation system (or a human) finds an exact match for the sentence it's trying to translate, it just retrieves the corresponding sentence in the target language from the database. It can also do this for near, or "fuzzy," matches, flagging them for review by a human translator.

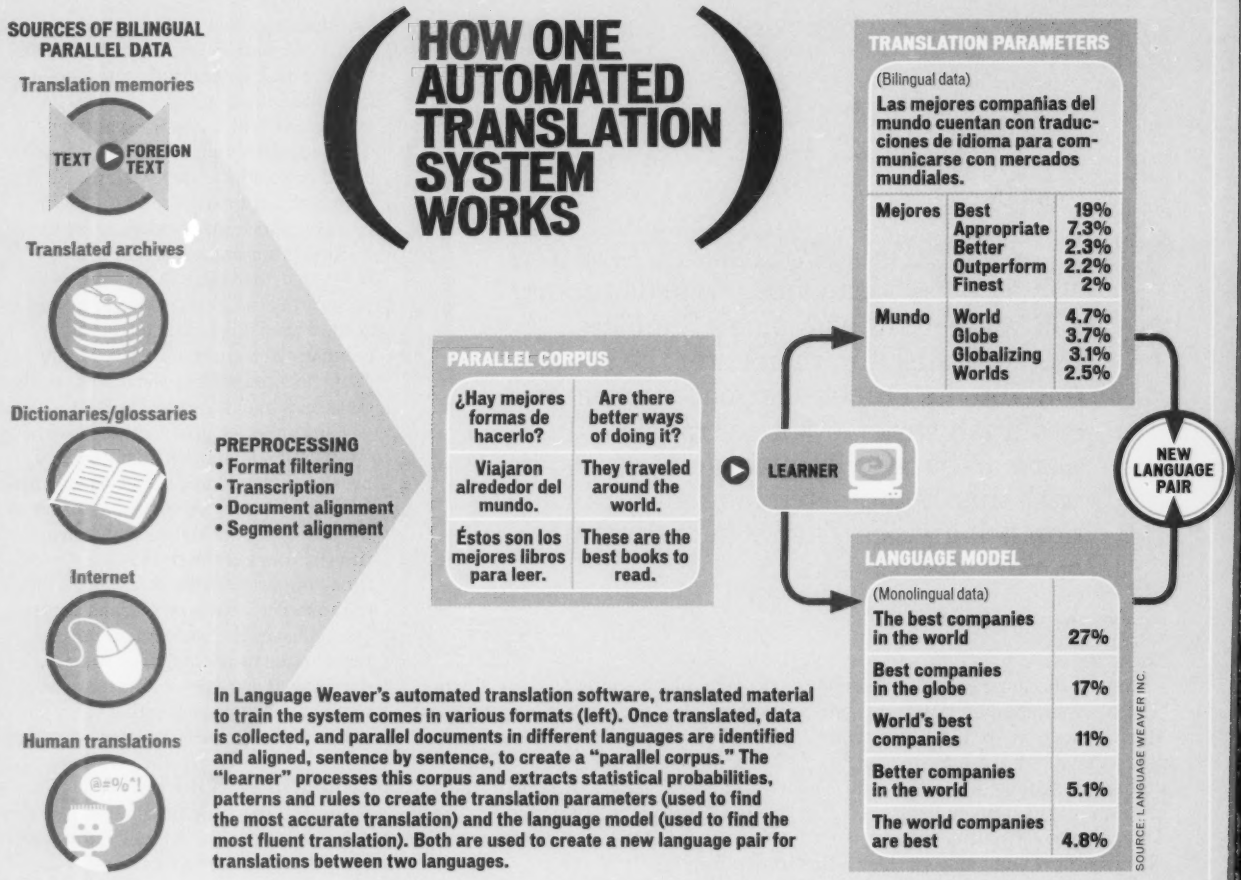
TRAINING THE SOFTWARE

Statistical machine translation is a newer technique that's not yet in widespread use. It uses collections of documents and their translations to "train" software. Over time, these data-driven systems "learn" what makes a good translation and what doesn't and then use probability and statistics to decide which of several possible translations of a given word or phrase is most likely correct based on context.

Statistical systems require large volumes of documents for training the algorithms, but they don't require grammatical rules, bilingual dictionaries or translation memories. The systems, in effect, develop their own rules and continue to fine-tune them over time.

Google Inc. uses Systran's rules-based software but is also developing its own statistical-based systems to translate to and from Arabic, Chinese and Russian. Those languages are especially tough for machine translators because their structures are so different from Western Romance languages, says Franz Josef Och, a research scientist at Google.

Och says Google will keep its ad-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NEW LANGUAGE PAIR
SOURCE: LANGUAGE WEAVER INC.

In Language Weaver's automated translation software, translated material to train the system comes in various formats (left). Once translated, data is collected, and parallel documents in different languages are identified and aligned, sentence by sentence, to create a "parallel corpus." The "learner" processes this corpus and extracts statistical probabilities, patterns and rules to create the translation parameters (used to find the most accurate translation) and the language model (used to find the most fluent translation). Both are used to create a new language pair for translations between two languages.

vanced translation technologies secret, but corporate Web sites may include a link to Google's translation tools at *www.google.com/language_tools* for free.

For some years, Microsoft Corp. has incorporated a rules-based natural-language parser in its Word software. More recently, it has used a combination of translation memories, rules-based and statistical-based machine translations, and humans to translate documents for its customer support knowledge base.

"The new direction in the research community is to see how you can combine these purely statistical techniques with some linguistic knowledge," says Steve Richardson, a senior researcher at Microsoft. "It's modeling the rules with the statistical methods."

The biggest user of Microsoft's translation software may well be Microsoft itself, which has an annual translation budget in the hundreds of millions of dollars. At one time, only 5% to 10% of its customer support documents were translated from English, because there was simply too much material, Richardson says. Now, that same percentage is translated by humans and the rest is done by computers.

GOOD ENOUGH

Automated translation in the corporate world succeeds to the extent that users are willing to carefully customize systems to their unique needs and vocabularies, he says. And the technology is most appropriate when translations don't have to be perfect. "We have serviced thousands and thousands of customers with articles we have machine-translated," Richardson says. "It's not perfect, but it's good enough. They get an answer without calling in. What's that worth to the company?"

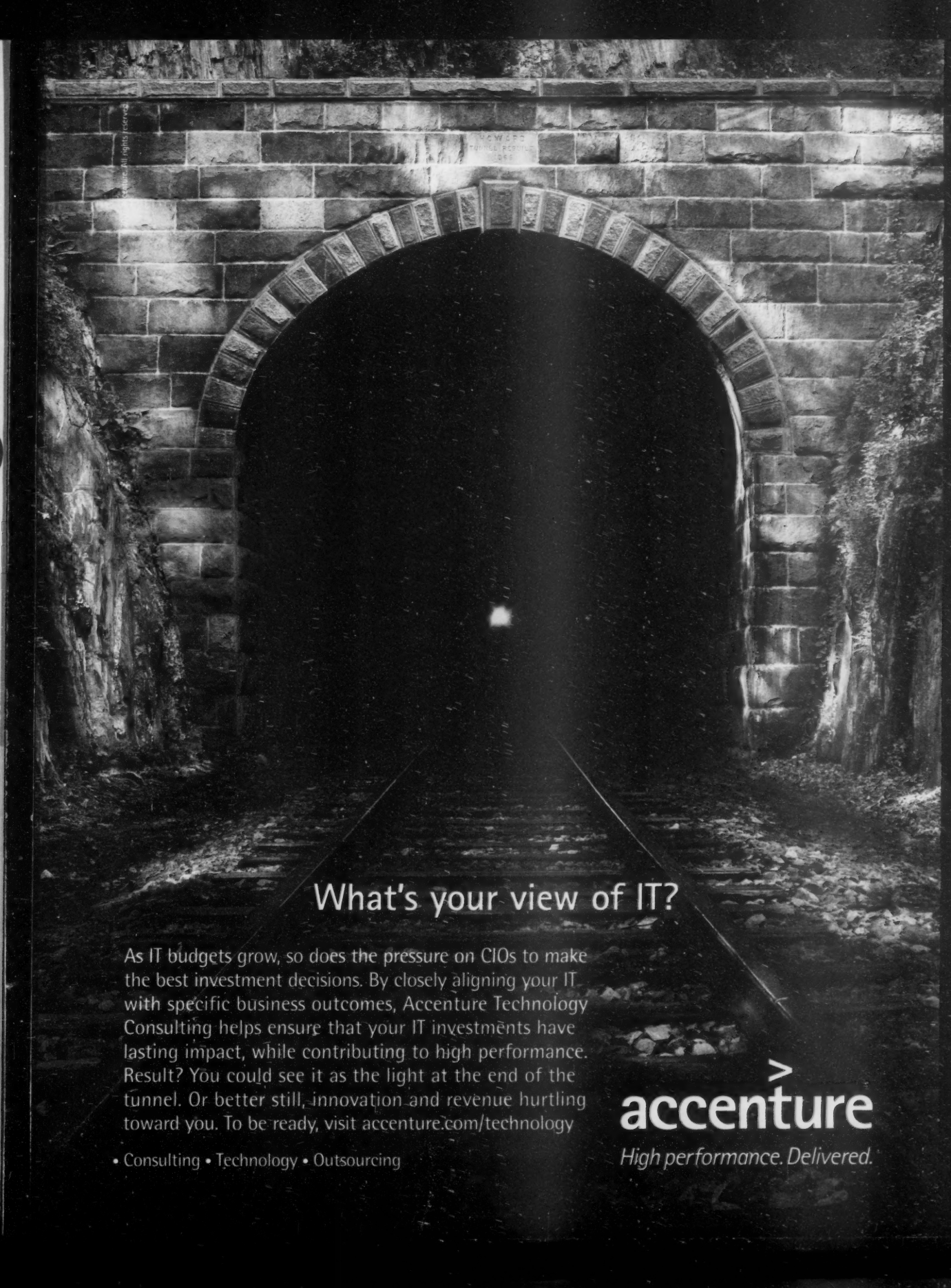
Asked if translation breakthroughs are on the horizon, he says, "The breakthroughs from a research perspective have already happened. The breakthrough on the practical side will come in creating systems that are integrated into the workflows of [user] companies."

That is precisely what FedEx Corp. is doing. Late in 2005, after an 18-month evaluation of various products and services, the Memphis-based delivery company began rolling out Trados GXT, a product of Maidenhead, England-based SDL International. It consists of translation memories integrated with an enterprise translation workflow system.

The plan is that eventually any user anywhere in the company will be able to upload documents for translation, and that an integrated system will manage the entire process by which customer-facing information is translated and published.

FedEx is also expanding the system to enable the translation of documents

Continued on page 34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ADVICE FROM A VENDOR

Idiom Technologies sells translation software but admits that it's not appropriate for all materials, especially those that must be very precisely worded. "Marketing folks spend hours debating single sentences," says engineering vice president Eric Richard. "For the foreseeable future, you wouldn't want to use machine translation for your marketing collateral."

But other things – entries in your tech support database or security alerts, for example – don't have such rigorous quality requirements. With those, "often a 'gist' translation is OK," Richard says.

So he advises companies to categorize their written materials in terms of their requirements for quality and timeliness. "Most companies have far more content that could be translated than they can actually translate," he says. "So this kind of analysis is key."

– GARY ANTHES

Continued from page 32

going to overseas employees such as salespeople. "It's an infrastructure component," says Tracci Schultz, an IT manager at FedEx. "It has databases, workflow, GUIs — all the things needed to integrate into our content management systems and into our [application] code repositories."

But Schultz is careful to point out that the system does not do actual machine translations. It can do much of the translation task by finding matching sentences in the translation memories, but whatever can't be found there is not passed through a rules-based or statistical-based system; it's sent to an outside provider of human-based translation services.

"There's sensitivity to the context and how we communicate with the customer," Schultz explains. "We are very conscientious about having people who understand our brand and our tone, and they reflect that in their translations."

To help it manage its translation outsourcing, FedEx went from 40 translation vendors to two during the introduction of its enterprise translation system, Schultz says, adding that the company will likely use those vendors' services less and less as its system's translation memories grow. She says FedEx hopes to get to the point where 80% of its translation workload is translated via memories and 20% by humans.

Meanwhile, translation systems are becoming more sophisticated by combining multiple methods. A statistical machine translation product from Language Weaver Inc. in Marina del Rey, Calif., can now be used with translation management software called WorldServer from Idiom Technologies Inc. Customers can tap into WorldServer to retrieve previously translated content in a translation memory or generate new translations — through Language Weaver's algorithms — when no matches are found.

The two methods complement each other, says Dave Rosenlund, a vice president at Waltham, Mass.-based Idiom. "Customers can find the maximum amount of translation reuse in translation memory, then complete any sentences that have not been previously translated," he explains, noting that the resulting document can then be passed to a human translator for review.

HYBRIDS ON THE HORIZON

Such hybrid systems, which combine translation memories and machine translation based on rules or statistics or both, are the wave of the future, researchers say, and they are becoming more sophisticated and complex.

At SRI International in Menlo Park, Calif., for example, researchers are working with the U.S. Department of Defense to automate the translation of Arabic and Mandarin Chinese — structured and unstructured text as well as real-time speech — into English.

In essence, SRI's approach is to do machine translations with the best available rules-based and statistical-based systems, and then have another system that "adjudicates" among them in real time to find the best translation.

Jordan Cohen, a senior scientist at SRI, says, "We get a 'system combination' answer by combining the results of five systems. It uses a process that takes into account the particular order of the output for each sentence in each system and the probability that that particular system produces good answers."

Users should not be surprised when garbage translations come from garbage input, regardless of system sophistication. No matter how smart these systems ultimately become, details will still count, says Ford's Rychtyckyj. "You can improve the translation quality a lot by improving the construction of the source text," he says. "Put articles in front of nouns, use the correct punctuation, and use proper English grammar."

Also, he advises, "you need to manage user expectations. Tell them they are not going to get perfect translations in all cases. Our users love to find examples of translations that come out with silly results."

Perhaps Rychtyckyj could suggest to his users, "Their computer and attempt still again load." ■

ADVICE FROM A USER

Tracci Schultz, an IT manager at FedEx, says the company developed a set of "international coding standards and best practices" as part of the rollout of its global translation infrastructure. The standards tell internal users and external partners how to use FedEx's language translation processes.

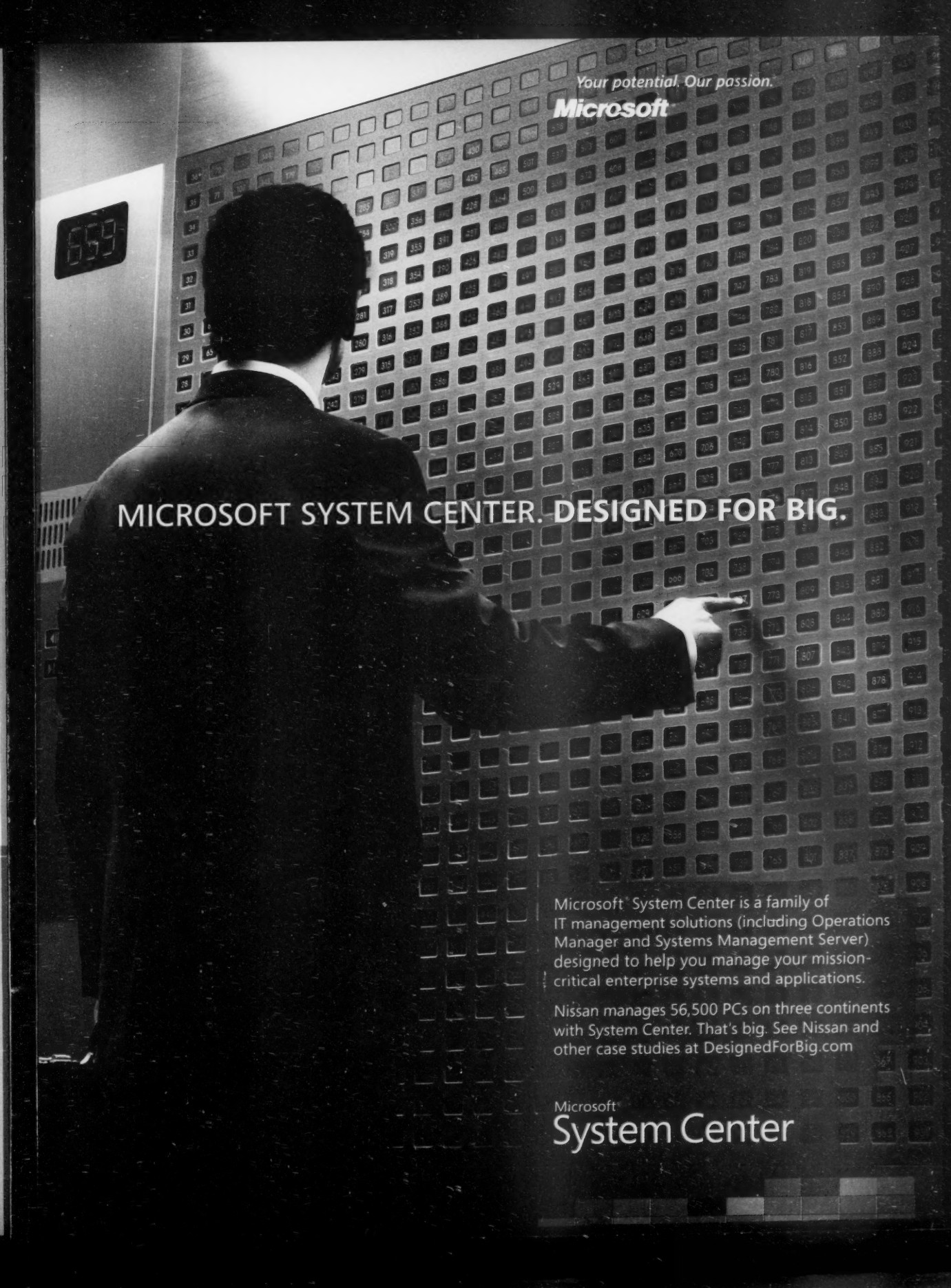
For example, the standards specify how a Java program should tag output that must be translated. They also include APIs for connecting the FedEx translation system to other systems.

"The establishment of best practices and standards is critical," Schultz says.

It's also crucial for a large company to have a top-down language strategy, she says. "You have to decide what languages you are going to grow and service and then align everybody in the organization to those languages," Schultz says. "You have to have a unified plan bought into by all levels of management."

Finally, even large international companies should fight the modern trend toward decentralization. "Companies have to look at it as an infrastructure product in a centralized role," Schultz says, "or it won't be successful."

– GARY ANTHES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Chip, Heal Thyself

It's becoming ever more difficult to make foolproof chips, but a new layer of software could fix them on the fly. By Gary Anthes

IN 1994, Intel Corp. shipped its new Pentium processor with a tiny flaw in a region of the chip devoted to floating-point division. The company shrugged off the problem as "extremely minor," but users screamed bloody murder, and Intel eventually recalled the chips, at a cost of $475 million.

Someday, such a financial and public relations disaster might be avoided by equipping chips with Tortola, a technology being developed by a young researcher at the University of Virginia in Charlottesville. Indeed, Intel and IBM are collaborating with computer science professor Kim Hazelwood as she works to create a way for users to download hardware fixes as easily as they do software patches.

Hazelwood says engineers and computer scientists have traditionally sought to optimize the performance of computer systems by concentrating on just one layer at a time — hardware, operating system, application software and so on. But she thinks the solution to a growing number of problems in microprocessors is to build a better bridge between software and hardware and to treat the two symbiotically. She calls this bridge a "virtual-execution environment," or VEE.

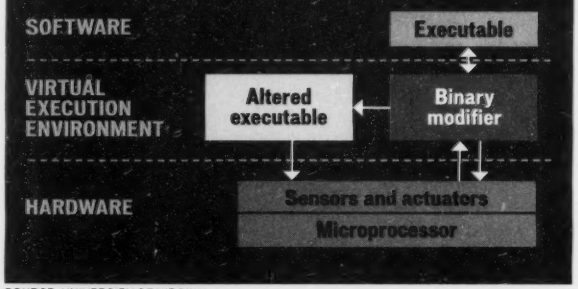
Here's how Tortola works: Hardware sensors (which often already exist on the chip) send information about things such as temperature and voltage anomalies to the VEE, which sits between the hardware and the executing software. The VEE is programmed to react to these signals and to alter the executable code as it runs. For example, if it sees a temperature spike, it might substitute some sequence of instructions known to be less taxing to the processor. It could also respond to performance problems such as memory cache misses or resource contention by reallocating the workload among chip resources.

Hazelwood has proved the concept on a well-known problem in which certain patterns of instructions cause chip circuits to turn on and off rhythmically and rapidly. That might happen, for example, when the same sequence of instructions is executed repeatedly in a program loop. This rapid switching can degrade the reliability of the processor and lead to incorrect results.

Hazelwood has shown that the VEE can sense when this is occurring by watching for voltage spikes and dips on the chip and then judiciously inserting "no-op" instructions — place-holder instructions that perform useless computations — to break up the on-and-off pattern. The VEE can also "unroll" an offending loop to lengthen the time between voltage spikes and dips to an acceptable frequency. The altered application code is stored in the VEE and is used instead of the original code as the program runs.

HARDLY HARDWARE

Tortola's Binary Modifier communicates with the processor. When it senses a problem, it replaces the offending executable code with equivalent code that sidesteps the problem.



SOURCE: UNIVERSITY OF VIRGINIA

NO MORE BOTTLENECKS

Hazelwood has also applied Tortola to a scheduling problem that is becoming more prevalent with the advent of multicore processor chips. The problem occurs when the cores are not all identical, as when they are designed with different features or when fabrication anomalies introduce slight variations.

The VEE can monitor the work of each processor core and dynamically reschedule work so as to eliminate bottlenecks. While in principle

Future Tech

WHAT TO WATCH FOR: A way for users to download hardware fixes as easily as they do software patches.

WHO CARES: Users and companies like Intel, which could save millions sending out patches instead of recalling chips.

"What's nice about the VEE is that it can intercept any instruction before it executes.
KIM HAZELWOOD,
COMPUTER SCIENCE PROFESSOR
UNIVERSITY OF VIRGINIA

the operating system could do the same, it would make it too hardware-specific to be practical.

"What's nice about the VEE is that it can intercept any instruction before it executes," Hazelwood says. "If it sees some instruction that the [chip] vendor knows is implemented incorrectly or inefficiently, it has the opportunity to replace that instruction with something else.

"What would be neat," she adds, "would be if instead of shipping just chips, Intel could ship a chip and a virtual layer. Then you could go to the Intel Web site for the latest patches to your hardware." That kind of arrangement may speed up product introduction cycles, too, she says, because some problems could be fixed after the chips are rolled out, and some backward-compatibility problems could be solved with patches.

Microprocessors have for some time included circuits for functions like power management and scheduling of instructions in multithreaded codes, but it's becoming more difficult to do those tasks in chips with multiple cores, says Ian Lao, an analyst at In-Stat in Scottsdale, Ariz. A virtual software layer between the hardware and operating system is just the right place to put those functions, he says.

"Having power management on the hardware side is not enough of an optimization," Lao says. "The hardware layer doesn't have the predictive capability to know what's going on."

Hazelwood says that traditional attempts — as well as some current proposals — to solve these problems have tended to be very coarse-grained, so they degrade the performance of the application as a whole. But Tortola can react to just those pieces of code that cause problems, leaving most of the code unaltered.

Robert Cohn, a senior principal engineer at Intel, won't say whether the company might adopt something like Tortola. However, he says, "it provides a way to adapt the software to the most efficient hardware solution but still provide a high level of software compatibility for the end user. Intel and its customers would benefit from higher-performing microprocessors without having to change their software." ■

Grand Challenges Ahead

AS A CONSENSUS document written by engineers from around the world, the 101-page International Technology Roadmap for Semiconductors (ITRS) is not noted for hyperbole. Yet in its Grand Challenges section, which attempts to look ahead 15 years, one finds statements such as these:

- **"New test requirements for increasingly complex devices . . . will present great challenges in the future."**
- **"Power leakage will become a major industry crisis in the long term, threatening the survival of CMOS technology itself."**
- **"Manufacturability . . . will become a major crisis as [chip] variability builds . . . and dramatically invades all aspects of a design."**

For years, the industry focused on following Moore's Law – getting more transistors onto a chip and more performance out of it. But the Grand Challenges in the ITRS now deal mostly with issues like power leakage, chip variability, the cost and difficulty of testing – even esoteric things that affect transistors' performance as they shrink, such as cosmic rays and quantum effects.

All of these factors – mostly a result of trying to make circuits work at unimaginably small scales – suggest that chip defects will grow in number as it becomes prohibitively expensive or impossible to exhaustively test chips before they ship.

And those defects will give rise to unanticipated problems that can best be dealt with at runtime, says Kim Hazelwood, a computer science professor at the University of Virginia.

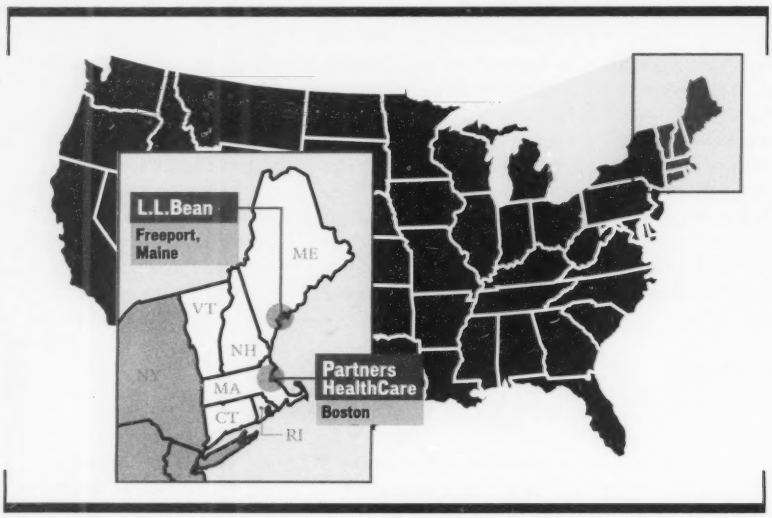
"The power and reliability issues will vary by chip, which means that reactive, software-based solutions become very appealing," she says. "We will soon witness the ability to mask hardware issues using virtualization software moving out of the realm of innovation and into the realm of necessity."

"Power limitations have been a concern for several years, and reliability will become more of an issue," notes Intel engineer Robert Cohn. "It is very challenging to provide a pure hardware solution to these problems. A virtual layer similar to Tortola allows the hardware and software to cooperate and results in a more efficient solution."

– GARY ANTHES

History & The Hub

These Best Places to Work offset a **high cost of living** with **flextime** and **rich benefits.** By Thomas Hoffman



THERE'S a lot to like about the Boston area and New England in general. "The Hub," as greater Boston is affectionately known, oozes history, has a dynamic arts community and boasts perhaps the highest concentration of college students per capita of any metropolitan area in the U.S. No wonder the area also carries the nickname of "the Athens of America."

In addition to hosting some of the more successful professional sports franchises in the U.S., New England (the six-state region that stretches from Connecticut to Maine) also offers residents and visitors a wide variety of recreational activities, including sailing, skiing and hiking, as well as relaxing at breathtaking beaches.

But with so much to offer, it's little surprise that the Boston area is also one of the most expensive places to live and work in the U.S. According to Salary.com, Boston's cost of living is 33.8% higher than Denver's (but 2.2% lower than San Diego's). According to the Federal Reserve Bank of Boston, the median household income was $61,333 for the Boston-New Hampshire metropolitan area in 2004 and $45,892 for city residents that same year. Project managers in New England pulled down an average of $96,556, according to *Computerworld*'s 2006 Salary Survey, while database administrators and systems analysts hauled in $84,600 and $75,322, respectively.

With high-tech hubs such as the Route 128 corridor and Kendall Square in Cambridge, Mass., New England is home to a variety of biotechnology, financial services and health care companies, which offer diverse employment opportunities for IT professionals.

Partners HealthCare

IT HEAD COUNT: 1,300

CIO: John Glaser

CURRENT IT PROJECTS: Compass, an initiative to implement a single set of patient administrative systems and revenue cycle processes across the entire health care system; a service-oriented architecture (SOA) to drive commonness of clinical data in applications and to encapsulate knowledge and rules to make change easier, quicker and safer.

CURRENT IT OPENINGS: Programmers/developers, applications analysts, project specialists, and team leaders/managers for various groups.

HEALTHY CHOICES: After Chris Gervais graduated from Ithaca College in May 1995, he jumped on the dot-com bandwagon and became chief technology officer at an e-learning and knowledge management company called VIS Corp. in Waltham, Mass. Although the experience was an adrenaline rush and taught Gervais a lot about business, it pales in comparison to the values he has embraced since joining Boston-based Partners HealthCare System Inc. as a technology researcher in October 2001.

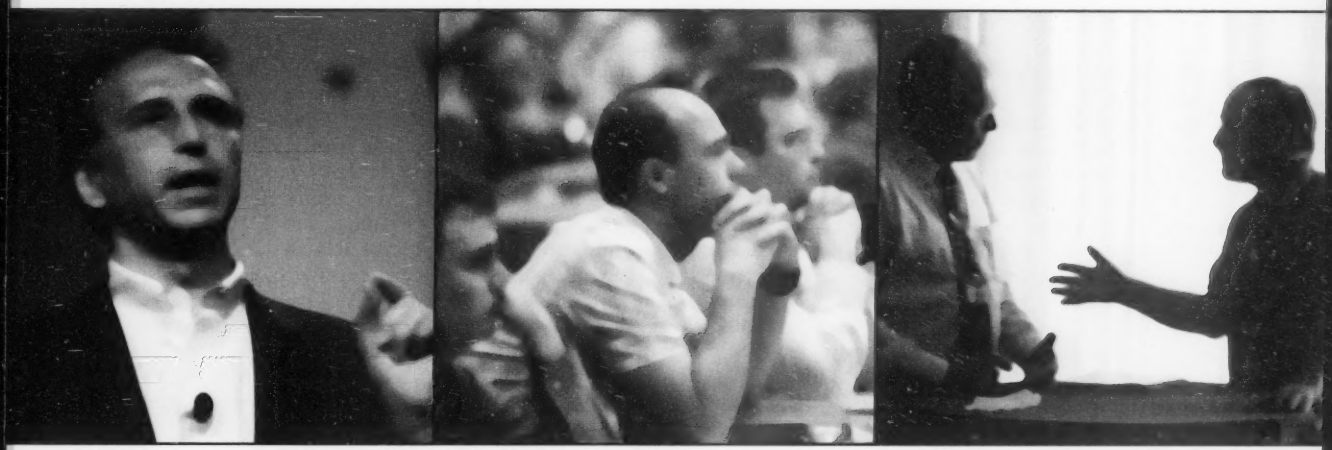
"One of the things that makes this place great for me is the overall charter of Partners [as a nonprofit humanitarian organization] and moving the health care agenda forward on a local, regional and national level, and how IT has and will transform health care," Gervais says.

Knowing that she has made an impact on patient wellness is one of the main reasons why Jennifer Rogala has remained at Partners since 1991 — three years prior to the merger between Brigham and Women's Hospital and Massachusetts General Hospital, which formed the organization. "For someone that doesn't have a clinical

Continued on page 40

Maximizing IT's Value to the Business

An Executive Roundtable on Business-Centric IT Portfolio Management



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Continued from page 38

background, IT people feel they're doing work that helps make people healthier and increase patient safety. It's pretty important." says Rogala, who is corporate manager, clinical systems development, at Partners.

Last fall, Gervais became Partners' enterprise architect for its SOA initiative. But the continuous evolution of his role is just one of the reasons he has stayed with the company. His wife, who also works in the health care field, is expecting their second child in October. The flexible work schedule that Partners offers Gervais enables him to help care for his son — something he considers a huge benefit.

"In the Boston area, which is an expensive market, you're going to have more and more employees with both spouses working," said Gervais. "You can't put a dollar amount on [flextime]; it's an intangible."

Rogala, who has also grown from her start as a program analyst to team leader and now corporate manager of clinical systems development, also appreciates the benefits that Partners offers. "The work can be very stressful," says Rogala, a lifelong Boston area resident. "If you put a semicolon in the wrong place in a line of code, a patient can get hurt. Partners makes sure you get ample time off, so that when you come back to work, you feel refreshed."

> **"Partners makes sure you get ample time off, so that when you come back to work, you feel refreshed.**
>
> **JENNIFER ROGALA**, CORPORATE MANAGER, PARTNERS HEALTHCARE SYSTEM INC.

Training is also a big area of focus within Partners' IT organization. "We have put a goal out there that every [IT] employee should receive 40 hours of training per year," says Laurie Connors, lead human resources generalist at Partners in Charlestown, Mass. The training could include a help desk worker shadowing a network engineer for a day, or an engineer receiving external Cisco or Microsoft training, Connors says.

One of the more creative career development programs offered to IT professionals at Partners since the fall of 2005 is called the Innovation Program. Here, 16 IT staffers are assigned a mentor and a business problem to solve. The workers are taken out of their normal work routines for 20% of their time over a 16-to-20-week period to work on solving a particular business problem by conducting research, interviewing high-level executives such as hospital CIOs and subject-matter experts, and even going on field trips to organizations such as Monster.com.

"The idea is that you can come back to your regular job and think about things differently and spread that kind of innovative thinking throughout the IS organization," says Connors.

L.L.Bean

IT HEAD COUNT: 300-plus
VICE PRESIDENT OF INFORMATION SERVICES: Jean Wilson
CURRENT IT PROJECTS: Retail expansion, and business process efficiency.
CURRENT IT OPENINGS: Quality assurance architect, software configuration management tools developer, senior network engineer, AS/400 developer, and Web developer.

DISCOVERING THE GREAT OUTDOORS: It's common to see employees of L.L.Bean Inc. biking or running at lunch time. There's a group that regularly plays soccer on an athletic field adjacent to the company's corporate offices. Another group, which includes IS manager Donna Lamberth, has been training together for a New England sprint triathlon. In fact, many L.L.Bean employees ride their bikes to work and leave them unlocked in bike racks provided at many of their office buildings.

"We've got expensive bikes that people just leave there," says Lamberth. "It's a wonderful thing about living here."

"Here" is the outdoor outfitter's home base, Freeport, Maine, along the southeastern coast of the "Pine Tree State." This is a company that's big on values, and one of the top ones it adheres to is to support its six primary stakeholders: L.L.Bean's customers, employees, shareholders, vendors and communities, and the environment.

The company's commitment to its employees is evident in the generous perks that they're offered. For starters, salaried employees receive three to five "outdoor days" each year that they can use to go hiking or participate in other outdoor activities with colleagues without having to use vacation time.

L.L.Bean also holds an online lottery for employees who would like to use of one of the eight cabins the company owns on Rangeley Lake in western Maine. At $75 per weekend, the largest cabin, which sleeps 10 people, is a steal. "You can't beat the price or the setting," says Martha Cyr, vice president of human resources.

Of course, there's more to working in IT at L.L.Bean than the company-sponsored volleyball games and barbecues on its campus. It offered 4.5 days of training for each of its employees in 2006, and this year the goal is for 85% of its IT staffers to reach that target, says Jean Wilson, vice president of information services.

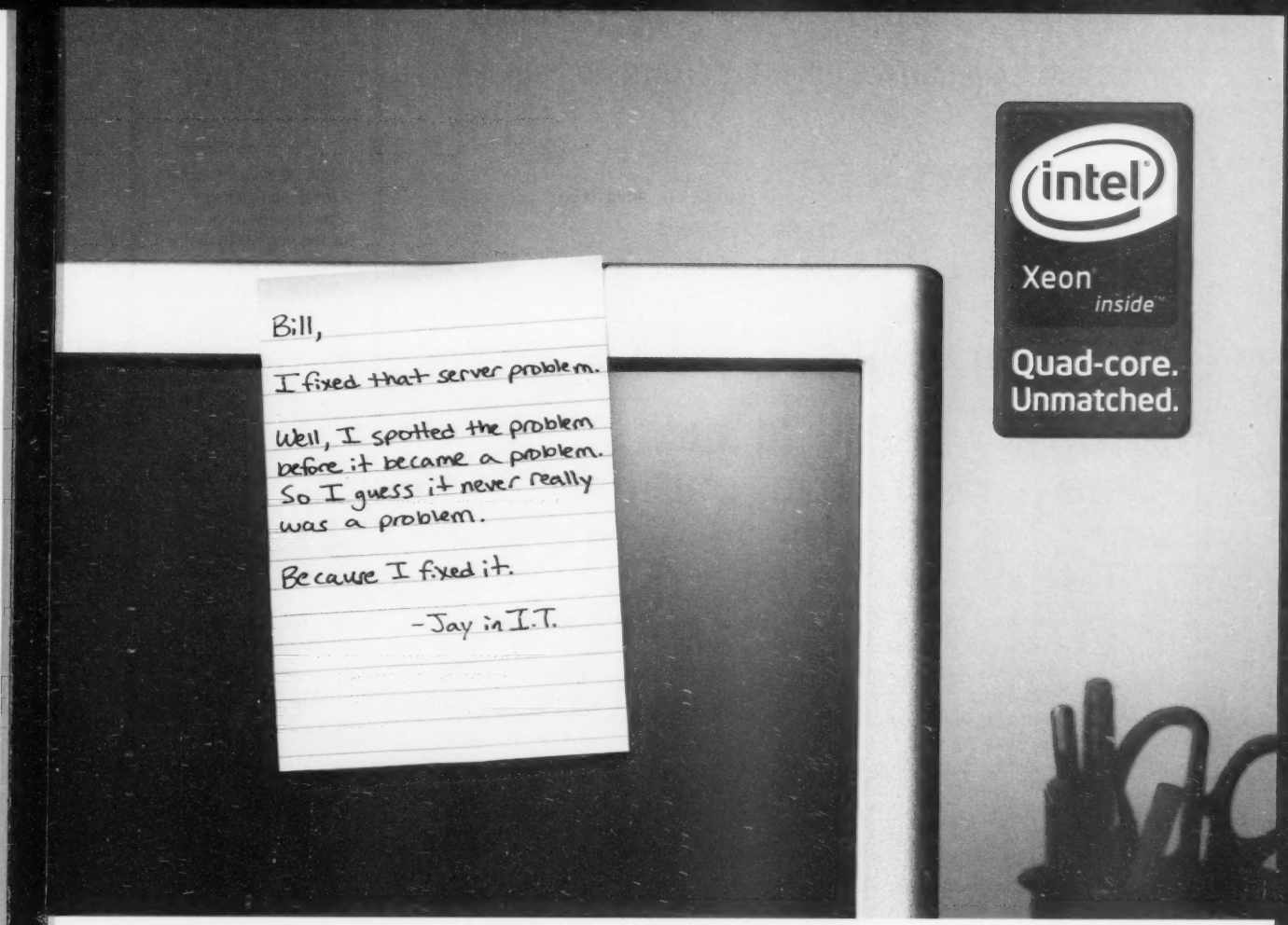
Of course, it can be a challenge to recruit IT professionals to work in one of the northernmost parts of the continental U.S. "Some people would say that we're at the end of the Earth in Freeport, Maine, and we do have our challenges in respect to attracting talent," says Lamberth, who oversees IT staff development. "But once people come here, they don't want to leave."

> **"This will be the fourth company I've worked at, and L.L.Bean is like no other in terms of impressiveness.**
>
> **JEAN WILSON**, VICE PRESIDENT OF INFORMATION SERVICES, L.L.BEAN INC.

"This will be the fourth company I've worked at, and L.L.Bean is like no other in terms of impressiveness," says Wilson. "The work is very challenging, in a good way — it's a very innovative company."

This includes recent IT-business projects aimed at expanding L.L.Bean's multichannel retail presence, "ensuring we are ready to do business with customers when, where and how they would like to shop," says Lamberth.

A sage strategy for a company that's constantly on the go. ■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From Russia, With Concern

A trip to Moscow **to audit** an offshore partner leaves our manager **wary.** And then there's **air-gapping.**

A DECISION TO send coding work offshore requires a weighing of benefits against risks. And who gets to deal with most of the risks? The security manager, of course.

That's why I just returned from my yearly trip to Moscow, where employees of a partner company write source code algorithms for some of our products. This arrangement puts our intellectual property at significant risk, so we have a strict contract outlining how PCs and network connections are to be set up. If our intellectual property is compromised on foreign soil, we have to rely on the local authorities to take legal action. And that's a hit-or-miss proposition.

Our contract requires that CD drives and USB ports and other external connections be removed or disabled on all the PCs used to work on our source code. We also rely on "air-gapping," which keeps these PCs off of the partner company's network. To do this, we set up a VPN that sends all the partner's network traffic to our company's gateways. This lets us control access to all resources, and we don't have to vouch for the integrity of another company's infrastructure; after all, we don't want its network security problems to be ours as well.

In Moscow, I conducted an audit of the partner company's operations. My findings were not good.

I had the local IT guy run a Microsoft Baseline Security Analyzer scan on a random sample of PCs. These scans showed that the PCs were not up to date with Microsoft security patches. I then sat down at these same PCs and checked their antivirus programs. Again, pattern files were badly out of date, by as much as two years. The Moscow engineers told me that since they have no Internet access, they can't download patches. They're right: While it is possible to do these updates without Internet access, it's a more time-consuming process.

■ The Moscow engineers say they can't download patches without Internet access. Good point.

NOT SO RANDOM

I also chose 20 PCs and checked to make sure that their USB ports were disabled and that no unauthorized applications were running, and I ran a limited forensic examination to ensure that the engineers who used those PCs weren't making unauthorized Internet or corporate network connections when I wasn't around.

I didn't have time to run these checks on the PCs used by all 50 engineers who work on our source code algorithms, so I chose the 10 engineers with the shortest tenure and the 10 with the longest. Why them? The newest employees had been given new PCs that had to be set up to meet our requirements from scratch. The longest-tenured employees may have become comfortable enough to try subverting our restrictions.

Many of the new PCs had working USB ports, mainly because they were shipped with USB keyboards. That seems innocuous, but this port issue will have to be dealt with. Fortunately, unauthorized applications and network connections don't seem to be big problems.

My talk with the engineers inevitably came around to something they've been requesting for months: Internet access. It makes sense, despite the security concerns. Programmers are more efficient when they can search the Web for code samples and other resources. Why should they have to reinvent the wheel? But before I authorize expanded access, the engineers will have to sign documents of understanding stating that unauthorized use of USB storage devices may lead to termination. As a stopgap, we'll place security tape around USB ports. I'll check back in with the partner in a couple of weeks for a progress report. If it's good news, I'll consider granting more access. ■

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

Trouble Ticket

ISSUE: A security audit in Moscow turns up several areas of concern, but the engineers there want Internet access.

ACTION PLAN: Demand stricter adherence to restrictions as a condition.

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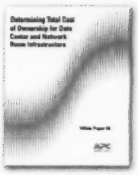

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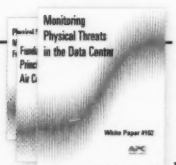

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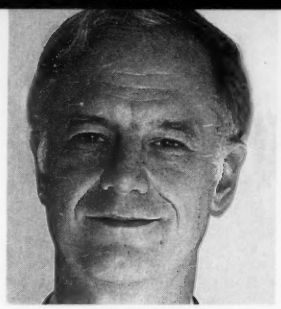
■ OPINION

Bart Perkins

The IT Horizon Is Looking Green



THE AMOUNT of power consumed by data centers doubled from 2000 to 2005, according to Jonathan Koomey, consulting professor at Stanford University. By the end of 2005, data centers were consuming approximately 1.2% of all U.S. electricity. The United Nations estimates that 20 million to 50 million tons of computer equipment and cell phones are dumped into landfills each year worldwide. Greenpeace asserts that electronic equipment is the fastest-growing waste segment on the planet and that only 12% of PCs and cell phones are recycled. Levels of lead, carbon dioxide and other pollutants resulting from the manufacture and use of electronic equipment are rising annually.

As the world struggles with global warming, IT leaders need to focus on reducing energy consumption and the use of hazardous materials. A number of governments are implementing regulations that will affect hardware manufacturers as well as IT departments. In particular, these three European Union mandates will have a significant impact on IT organizations doing business in Europe:

■ **The Restriction of Hazardous Substances Directive (RoHS)** prohibits sales in the EU of new electronic equipment containing more than specified levels of six hazardous materials. China and India are expected to adopt versions of RoHS within the next year.

■ **The Waste Electrical and Electronic Equipment directive** is closely aligned with RoHS. Under WEEE, manufacturers must establish a collection process within the EU to allow individuals and companies to return electronic waste, free of charge. Manufacturers must reuse or refurbish the waste or dispose of it an ecologically friendly manner.

■ **The Energy-Using Products directive**, which just went into effect in July, addresses all products using electricity or other fuels. It requires manufacturers to calculate and report the lifetime energy consumption of a product, including the energy used to manufacture, transport, sell, operate and dispose of it. Some observers speculate that manufacturers will be forced to reduce the lifetime energy consumption of new products to be sold in the EU.

■ IT leaders need to focus on reducing energy consumption and the use of hazardous materials.

The U.S. is also creating programs affecting electronic equipment, including the following:

■ The Environmental Protection Agency has had Energy Star guidelines for desktops, notebooks, workstations and game consoles for some time. On July 20, new Energy Star requirements demanding more-efficient power supplies and lower "idle power" went into effect.

■ On Jan. 24, President Bush signed an executive order requiring that 95% of electronic products procured by federal agencies meet Electronic Product Environmental Assessment Tool standards. EPEAT helps institutional buyers compare the environmental attributes of desktops, laptops and monitors. It incorporates many of the RoHS standards as well as the Energy Star requirements for PCs.

■ Many states are passing their own legislation. California's RoHS, modeled on the EU's, limits the amount of hazardous chemicals permitted in the manufacture of electronic equipment. California's Electronic Waste Recycling Act requires buyers of PCs and monitors to pay a $6 to $10 recycling fee at the time of purchase. Maine, Maryland, Virginia and other states also have electronic recycling acts. The Arkansas Computer and Electronic Solid Waste Management Act bans disposal of computer and electronic equipment in local landfills.

Unfortunately, state mandates often conflict with one another. Manufacturers are requesting national (or, better yet, worldwide) regulations to facilitate standard manufacturing processes and disposal methods.

Many business publications have recently run cover stories on the efforts of major corporations to make their operations more energy efficient and less harmful to the environment. Because of this new emphasis in the business community, IT organizations need to focus on meeting energy mandates and demonstrating environmental responsibility. ■

Bart Perkins *is managing partner at Louisville, Ky.-based Leverage Partners Inc., which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.*

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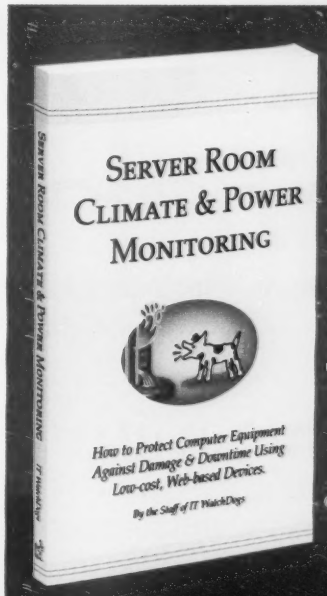
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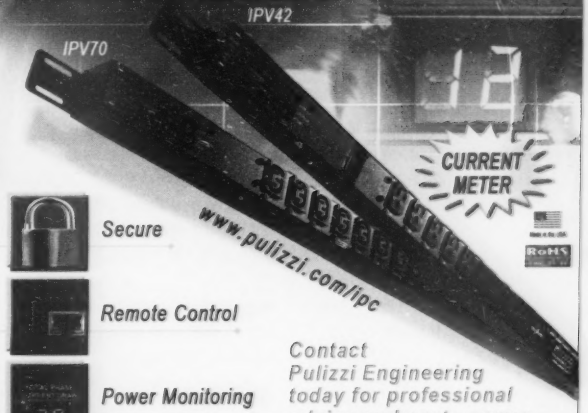

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Career Watch

93%

Percentage of business professionals who said they expect to change their career paths in 2007.

10%

Percentage of those who said they will try IT as a career.

SOURCE: CAREER SITE BEYOND.COM ONLINE SURVEY OF 4,300 PEOPLE

■ Q&A

Jerry Smith

The **CTO** at product engineering **outsourcer** Symphony Services talks about the keys to **collaborating** with **offshore** colleagues.

What's the key to global collaboration? Companies that view offshore teams as partners – seamless extensions of their onshore teams – rather than task-based, lower-cost resources tend to get better results and have more rewarding team experiences. There must be a shared view of the product road map and vision for the future. If you do not have an attitude of equality and transparency and an accountability structure, it will be difficult to maximize the effectiveness of outsourcing, and productivity will suffer while frustration rises.

What are the stumbling blocks? Communication, or rather a lack thereof, is a common stumbling block for many outsourcing relationships, especially given expansive time-zone differences. The best solution is to dictate common development processes, measurement and reporting tools and a common lexicon for everyone to follow. This makes it easier to operate, given cultural or technical differences, and helps to manage expectations for critical issues like delivery time frames.

On the personal level, it is important to build camaraderie. The team may not actually get to share a beer after work, but the virtual world is an accommodating place. The key goal here is to create a highly collaborative work environment that replicates the hallway conversation in a systematic way, with things like blogs, wikis and Second Life avatars.

At the start of the relationship with your extended team, build in the budget for more frequent travel. Once work is under way, set a regular schedule for meetings – daily, weekly, quarterly – and use webcams or a videoconferencing system so teammates can associate names with faces and voices.

Are many companies showing an interest in investing in training to help smooth over cultural tension? As the mindset shifts from best-cost project work to a more strategic partnering approach, companies are taking a longer view and therefore are much more likely to invest in the proper training and education upfront. In addition, there have been enough experiences – both good and bad – for companies to learn from.

– JAMIE ECKLE

BRINGING THE WORK BACK HOME

On the front page of its July 3 issue, *The Wall Street Journal* highlighted what is perhaps a growing trend. In a story called "Second Thoughts," reporters Pui-Wing Tam and Jackie Range spoke to some small tech companies in Silicon Valley that had sent development work to India and are now pulling it back. According to one executive quoted in the story, his company last year paid its engineers in India about half of Silicon Valley salaries, but by early this year, the level of pay had reached 75%. "Taking into account the time difference with India," said Munjal Shah, CEO of start-up Riya Inc., "we weren't saving any money by being there anymore." This spring, Riya closed down its Bangalore office and offered half of its engineers a chance to move to San Mateo, Calif., with work visas.

The Movers Behind MOVING UP

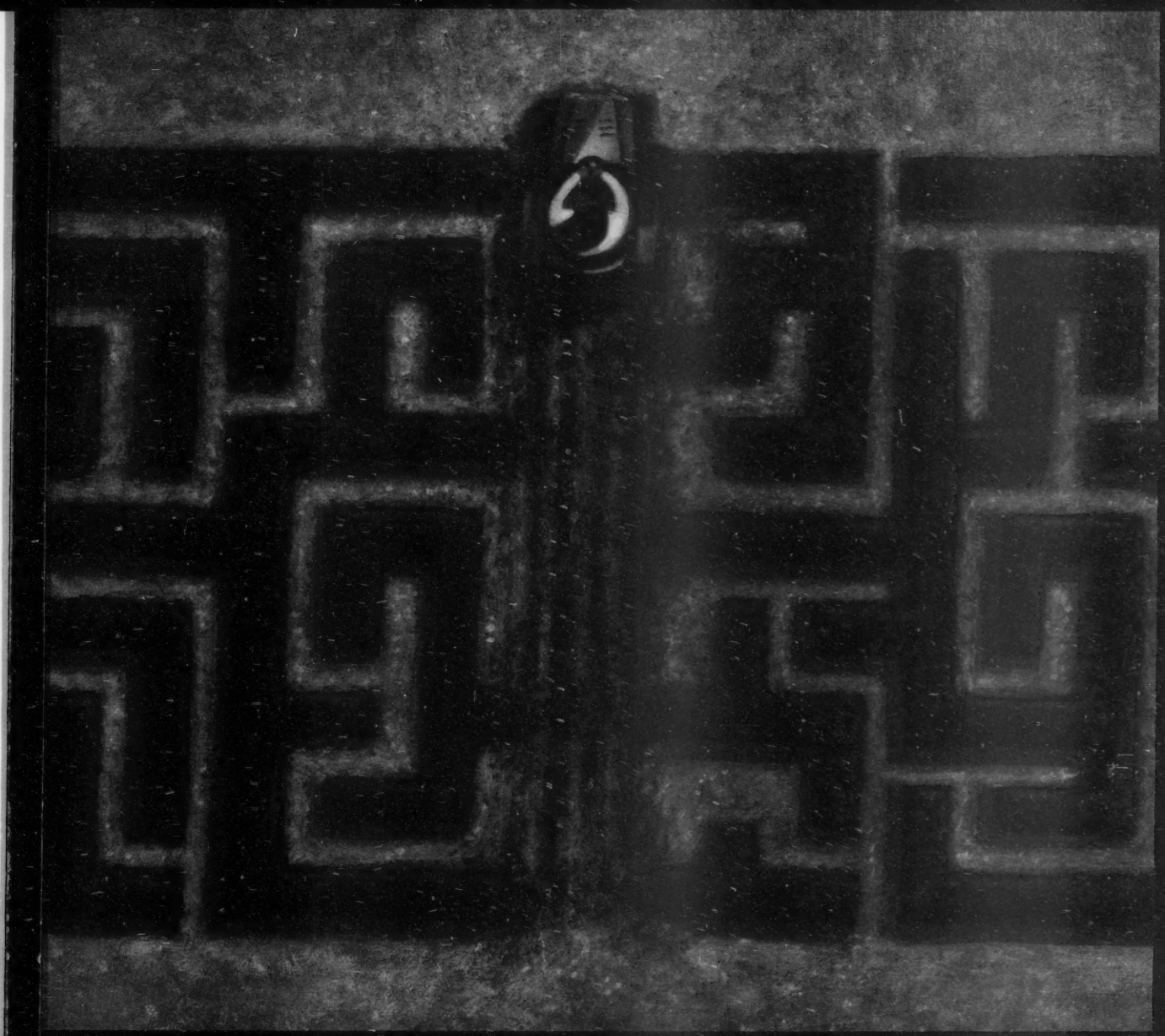
What motivates leaders to take a promotion? For U.S. business leaders, the top two motivators are the ability to make things happen and making money doing it, according to a survey by Development Dimensions International Inc. For leaders outside the U.S., it's all about making things happen and gaining the respect of their peers.

WHY TAKE A PROMOTION?

GREATER OPPORTUNITY TO MAKE THINGS HAPPEN	
U.S.	53.2%
Global	62.8%
MORE MONEY	
U.S.	52.7%
Global	26.2%
SELF-ESTEEM	
U.S.	37.4%
Global	27%
GREATER STIMULATION	
U.S.	33.5%
Global	28.6%
ABILITY TO HELP OTHERS SUCCEED	
U.S.	32.2%
Global	20.3%
RESPECT FROM PEERS	
U.S.	31.2%
Global	40.9%
PERKS/TRAVEL	
U.S.	13%
Global	28.6%

SOURCE: DEVELOPMENT DIMENSIONS INTERNATIONAL INC.'S FALL 2006 SURVEY OF 385 U.S. AND 400 GLOBAL LEADERS IN FRONT-LINE, OPERATIONAL AND STRATEGIC ROLES

PAGE COMPILED BY JAMIE ECKLE.



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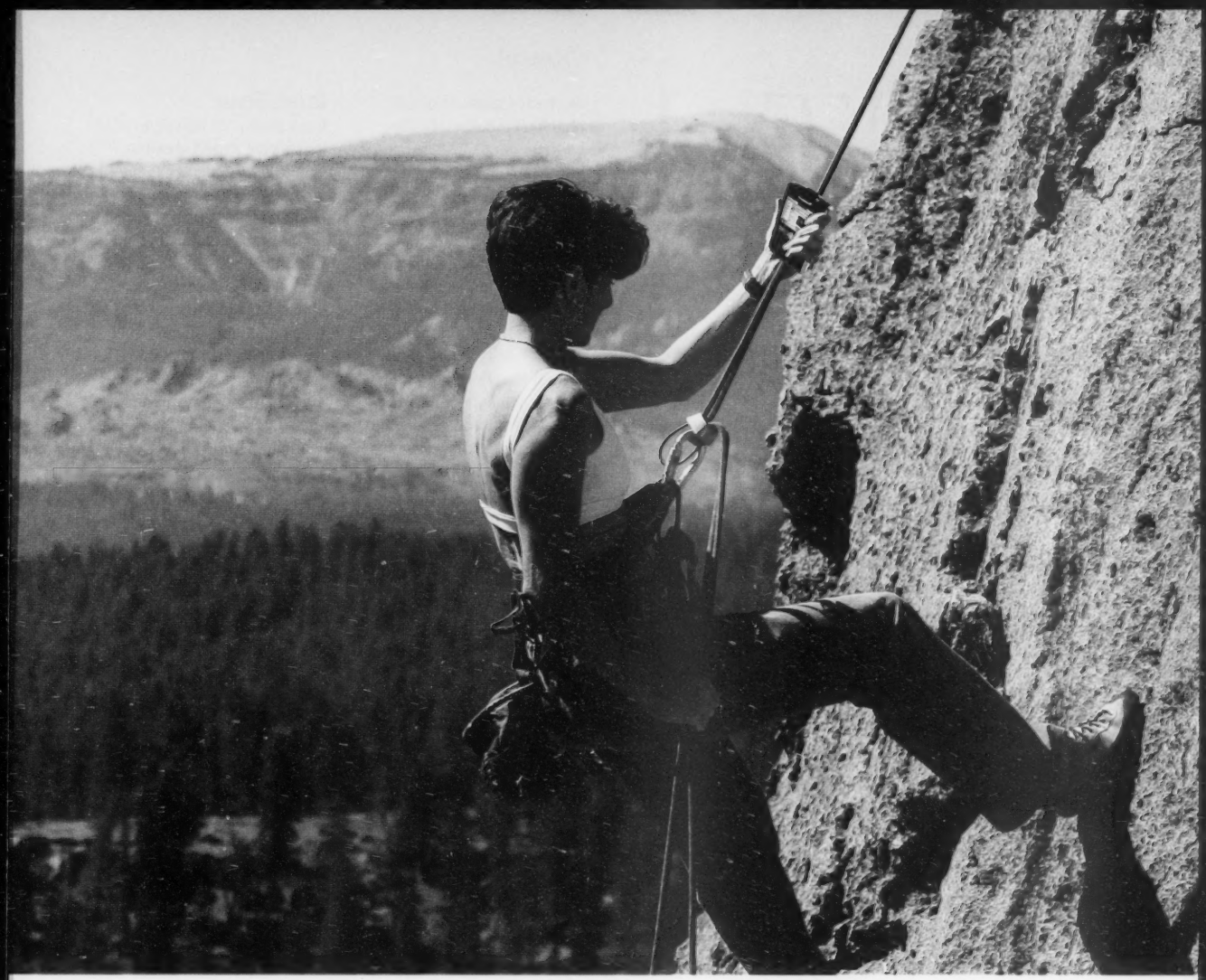

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Let's Take This One Step at a Time

Intermittent noise from this PC's power supply gets a little louder every day, says the pilot fish in the cubicle next door. "Our resident hardware guru tries to fix it by hitting the CPU – he actually winds up and smacks it a good one," fish reports. "Now the noise is constant instead of intermittent. A new power supply is ordered. About a week later, it arrives – along with an official installation person from the vendor. The installation person calls the vendor's hot line, and after the requisite greeting and identification, the hot line operator's first question is this: 'Did the noise stop when you removed the power supply?' Well, yes . . ."

Nobody Home

A user calls the help desk to complain that her calendaring software isn't working properly. "I'm setting up a meeting for next Wednesday," she says. "I did a 'busy' search, and it shows my boss as being available, but I know he's on vacation all next week. This is bad – what if somebody schedules him for a meeting and he doesn't show up?" The support pilot fish who's handling the trouble ticket calls the user back. Did your boss enter his vacation into his calendar? "Oh no, I enter all his appointments," says the user. Did you enter it in, then? Pause. "No, but shouldn't it automatically be there, since he'll be on vacation?"

Sorry, Can't Do It

This county office installs a spam filter for incoming e-mail, and some users are confused and upset. "Seems they didn't understand that 99% of everything caught was indeed junk," says e-mail admin pilot fish. But fish works hard to explain to users that the filter is adjustable, and if some legitimate messages keep getting caught in the filter, the senders can be whitelisted to make sure the mail goes through. "We thought this was going pretty well until we received an interoffice mail from one of the nice folks who was indeed one of the clueless users," fish says. "It was a printed-out fax that had a handwritten note reading 'Please add this sender to the junk e-mail list.' "

Open Boss

Boss confronts netadmin pilot fish during a staff meeting. "He said he doesn't like the way a well-known network OS handles assigning rights," fish reports. "I informed him that that's how the OS is designed. Boss said, 'So change it.' I asked how, and he said, 'Can't you get your hands on the source code and make the changes?' I answered, 'If I had my hands on the source code, I wouldn't be working here!' "

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Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement #41321518. **CANADIAN POSTMASTER:** Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published weekly, except for a single combined issue the first two weeks of July and the last two weeks of December by Computerworld, Inc., 1 Speen Street, Box 9171, Framingham, Mass. 01701-9171.

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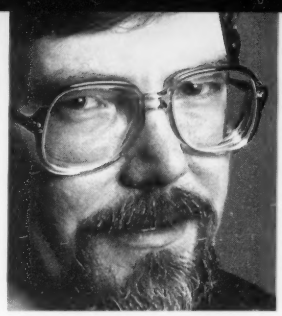

Virtual Trouble

USING SECOND LIFE FOR BUSINESS? Yeah, it's a screwy idea. OK, there *are* companies that have set up imaginary shops in Second Life and other "virtual worlds," including Toyota, Reebok and Adidas. And yes, IBM and Intel have made a big deal about using Second Life for some meetings.

But most IT shops don't need to worry about this yet — right? Oh yes. Boy, do we ever.

Here's why: Your most tech-savvy users know all about Second Life. And there's a good chance they've thought about holding some business meetings there — anything from workgroup get-togethers to sales presentations. Maybe they're already doing it.

If they are, you're the last people who will hear about it.

Look, remember when your marketing department first started fooling around with the Web? They didn't go to IT — they just found an outside Web-hosting provider cheap enough to pay for out of petty cash.

Remember when power users first smuggled in instant messaging? They didn't ask us — they just passed the free client software around to everyone else, and it spread.

Today we have corporate-class Web capabilities and secure, loggable instant messaging. That stuff is enterprise-ready. A few years ago, when users brought it in, it wasn't.

And that's where Second Life is right now.

Well, it's not ready for *most* enterprises, anyway. Last fall, IBM honcho Sam Palmisano announced that he has a Second Life avatar, the on-screen character that represents him at staff meetings in the virtual world. And Intel has at least 150 people testing the virtual-meeting waters.

But IBM and Intel are doing those meetings as research projects. They're figuring out security and regulatory issues — after all, a Second Life meeting *is* electronic communication. Last month, IBM even issued its first set of guidelines for how employees should behave when they're representing Big Blue virtually.

■ Second Life is unsecured, unarchived electronic business communication – a regulatory nightmare.

Meanwhile, Second Life's operator, Linden Lab, just announced that it will open-source the Second Life client software. That means third-party service providers can work on the code to make it more enterprise-friendly, then start renting out virtual meeting space to all comers. Very soon, it could be as easy for a user to set up a Second Life meeting as it is to set up an ordinary teleconference today.

But right now, that's not ready.

And your users won't wait. Why should they? From their point of view, if they're already in Second Life, they just have to decide where their avatars will meet to hold their virtual chat. They can even buy virtual land and build their own virtual meeting places, all at petty-cash prices.

From your point of view, it's unsecured, unarchived electronic business communication — a regulatory nightmare, even if it doesn't cause technical problems.

Yeah, you should worry — and then act. You won't hear about this from users until they've got a glowing virtual-meetings success story to present to your CEO. So let users hear from you.

What should you say? You could preemptively outlaw Second Life for work, and good luck trying to make that stick.

Or instead you could explain why virtual-world meetings create security and regulatory headaches, and that you'd like to work with them to find fixes for those problems before they start dabbling in this stuff. (That message tells your CEO that you're on top of the situation, and it puts users on notice that Second Life meetings aren't approved.)

Then start looking for those fixes — whether that means videotaping a computer screen during virtual meetings, or hacking the data stream in that open-source Second Life client, or even distracting users until vendors come up with secure, loggable systems.

Just don't assume Second Life is nothing to worry about. That world may be virtual, but the trouble it could cause you is real. ■

Frank Hayes *is* Computerworld's *senior news columnist. Contact him at frank_hayes@computerworld.com.*

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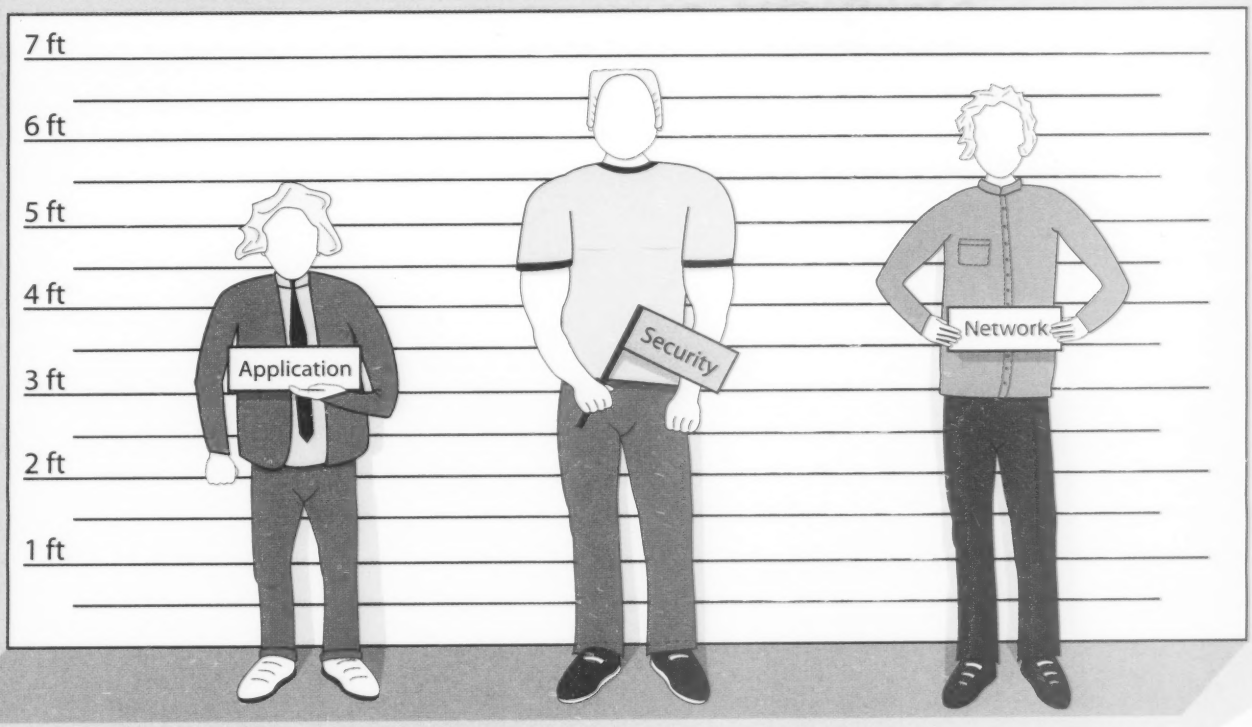

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_INFRASTRUCTURE LOG

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_DAY 77: I found a way out of this mess: the super-efficient IBM BladeCenter®. It helps us manage power and cooling usage with intelligent Cool Blue™ technology. And with its new Quad-core Intel® Xeon® processor, we won't have to sacrifice performance for efficiency. So out with cables, in with blades.

_DAY 79: Gil's stuck under the ball. Tried calling his wife. Turns out the photo of his family came with the frame.

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